

Merry Christmas and A Happy New Year

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USDA Move Might Mean Lower Price Support Levels

Reduction in Support
For Dairy Products
Hints at Lower Trend

By JOHN CIPPERLY

Croplife Washington Correspondent

WASHINGTON, D.C.—A decision by USDA last week to reduce the price support level for dairy products in the coming crop year to 75% of parity from its previously high level of support is regarded as a clear index of what must be expected for the feed grains and oilseed crops.

After the abortive attempt by a Republican Congressional group to unseat Ezra Taft Benson and his recent press conference, where he carried the fight to this opposition stating that he planned to remain here as Secretary of Agriculture as long as the President wanted him, he has blossomed out with a renewed enthusiasm and a bold front.

Following the meeting here last week with his two big advisory committee groups—the National USDA advisory committee appointed by the President, and the Commodity Credit Corporation advisory committee, Mr. Benson carries into his fight for his farm principles full backing of those two bodies for nearly all of his major points.

(Continued on page 8)

Woodbury Opens New Insecticide Plant in Florida

ST. JOSEPH, MO.—Woodbury Chemical Co., with general offices and plants in St. Joseph, Mo., has announced the opening of new insecticide plant facilities in Goulds, Fla., with Richard K. Hutchings in charge of operations.

The Florida plant was set-up to handle the increasing volume of insecticide business being developed in southeastern United States, according to Herbert A. Woodbury, company president. The export division of Woodbury, under the direction of Joseph L. Flores, will also utilize the Florida facilities to supply markets in Latin America.

The western division of Woodbury in Denver, under the management of Leonard R. Everett, has now consolidated its production and warehousing facilities with the recent purchase of the Brancucci Co. chemical plants in Denver. The western division was established in 1956 with the purchase of the Export Chemical Corporation of Colorado.

Healthy-Looking Soybeans May Hide Cyst Nematodes

WASHINGTON—Roots of lush-growing soybean plants may be supporting high populations of soybean cyst nematodes that will attack 1958 plantings in some infested areas, the U.S. Department of Agriculture said Dec. 18.

On the other hand, parts of fields that show heavy damage now may be supporting only a relatively small number of nematodes. Nematodes build up rapidly on healthy, vigorous root systems, but more slowly on the poor root systems found on plants attacked early in the season.

First discovered in North Carolina in 1954, the soybean cyst nematode has since appeared also in parts of Tennessee, Missouri, Arkansas, Kentucky and Mississippi. The pest attacks roots of soybeans, lespedeza, common vetch, snap beans and adzuki beans.

"Some soybean growers whose fields show no apparent damage tend

(Continued on page 21)

PRODUCTION CONFERENCE TOLD . . .

Chemicals Play Key Role in Cotton Pest Control, Fertility

By LAWRENCE A. LONG

Editor of Croplife

MEMPHIS, TENN.—The roles played by adequate fertilization, control of insects and plant diseases, irrigation and various cultural practices in the production of cotton were on the agenda for discussion at the Beltwide Cotton Production Conference held here Dec. 12-13. The meeting was sponsored by the National Cotton Council of America, in cooperation with land-grant colleges, the agricultural chemical industry, the U.S. Department of Agriculture, vocational agricultural groups and farm organizations.

Jack V. Vernon, president of the Niagara Chemical Div., Food Machinery and Chemical Corp., Middle-

port, N.Y., and president of the National Agricultural Chemicals Assn., told the group that the problem of getting scientifically-trained personnel to man staff research departments is a major problem in developing agricultural chemical products. Such people, he said, must be interested in their work, and must be willing to play on the research team, gaining recognition for their contribution to usefulness in agriculture.

Mr. Vernon told the group of cotton experts that risks are great in the development of any new chemical product, and that the cost is very high. From inception to readiness for use, he said, the tab is around \$1 million. If the pesticide is useable for agricultural purposes, he said, it has a good chance to succeed, but there are risks beyond that, he reminded.

"If resistance builds up quickly by the insect to be destroyed," the speaker said, "you can readily understand how hopeless can become the chances of recovery of the risk capital involved."

Development of toxicity data on which residual tolerances may be established so that safe uses of pesticides may be prescribed and directed was cited as another hurdle. The process is expensive and time-consuming, Mr. Vernon said.

In describing problems arising out of federal and state legislation, the speaker cited the agricultural chemical industry's record of supporting sound legislation such as the Miller Amendment to the Food, Drug, and Cosmetic Act and model state pesticide laws as recommended by the Council of State Governments and the Association of Commissioners, Directors and Secretaries of Agriculture.

"However, I would like to state that we vigorously oppose restric-

(Continued on page 20)

BUT FIERCELY COMPETITIVE

Anhydrous Industry Leaders See Unlimited Opportunities Ahead

By THOMAS E. LETCH

Croplife Staff

LITTLE ROCK, ARK.—Members of the Agricultural Ammonia Institute met here Dec. 11-13 in the Marion Hotel and the City Auditorium for the association's seventh annual convention and trade show.

More than 400 registrants from 32 states and Canada took a brief glance at the past and, with information gathered during the convention, made plans for the future . . . a future that industry leaders expect to be unlimited in its opportunities

but fiercely competitive and one in which only the alert businessmen will succeed.

Formal talks were a rarity at this convention. And the talks that were presented were not about the anhydrous ammonia industry, with one exception. The "meat" of the meeting was contained in five roundtable discussions featuring some of the best-informed men in the business and in the trade show which included 30 exhibitors. Distributors and dealers went from table to table to get the answers to questions their customers ask them and to get tips on how they can end each year with a profit.

Fred M. Stewart, Agricultural Ammonia Service, Inc., Santa Paula, Cal., president of the AAI, set the mood for the meeting when, in his president's message, he said: "Many of us have experienced a few rocky roads during the last two years. These experiences are a necessary though sometimes painful part of the maturing process. No industry can continue indefinitely on a boom basis but must sooner or later face up to the facts and responsibilities of maturity if it is to survive in today's complex economic system."

The key to increased prosperity of the industry and its members, Mr. Stewart said, is in helping the na-

(Continued on page 17)

Cotton Growers Approve Quotas for 1958 Crop

WASHINGTON—Preliminary returns indicate that growers of both upland and extra long staple cotton have approved marketing quotas for the 1958 crops in referendums held throughout the Cotton Belt on Dec. 10, the U.S. Department of Agriculture, has announced.

Of the growers voting, early results show that 93% approved quotas for the 1958 upland cotton crop, and 88.1% approved quotas for the 1958 crop of extra long staple cotton. Results compare with favorable votes a year ago of 92.4% for upland and 94.5% for extra long staple of the 1957 crop.

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UNWANTED "GIVE-AWAY" PROGRAM . . .

Fertilizer Overruns Cause of Serious Losses

By Dr. Vincent Sauchelli
National Plant Food Institute
Washington, D.C.

Fertilizer mixtures are formulated so that their composition shall conform to a specified analysis within close limits. The lower limit is the tolerance permitted by the state fertilizer control regulations; the upper limit is set by the manufacturer. An unfavorably wide upper limit or "overrun", can become a serious monetary loss. The annual cost to the entire industry of such "overruns" is in the millions of dollars. That such huge losses can be substantially reduced by statistical control procedures will be shown in what follows.

Quality Control

Statistical quality control has become an approved management technique in modern industry essential to efficient, economical operation. The fertilizer industry has not generally utilized this indispensable management tool. Several companies in the industry are employing it and have reported favorably on the results.

Quality control recognizes that in any manufacturing process it is quite impossible to avoid variations and biases and furthermore that it would be prohibitively costly to inspect each and every item or unit of production. For example, in fertilizer manufacture it is not economically feasible to make the identical fertilizer grade from batch to batch, from work shift to work shift, or in continuous operation because variations are inevitable due to the process, to errors in weighing, to biases in the workers, to the nature of the ingredients and to sampling and analysis.

Quality control analyzes the variations of a certain number of statistically randomized samples to determine whether they exceed normal deviation or are caused by assignable factors. In this procedure the statistician studies the sources and the amounts of variation and the results enable him to choose the sampling technique most suitable to the situation at hand.

The amount of variation may be expressed as differences but it is customary now to use the concept of a standard deviation based on the laws of probability because experience has shown it is the best measure. For example, in a large series of values (say, chemical analyses) it has been found that about two thirds of these values (68%) will differ from the average value by less than one standard deviation; about 95% will differ from the average by less than two standard deviations; and about 99% by slightly less than three standard deviations.

To illustrate this concept from an actual study: the analyses of many bags of a 20% superphosphate showed a standard deviation of 0.024%. The true average was 20%. Then, it is predictable that about two thirds of the analyses of the individual bags would analyze between (20+0.024) and (20-0.024); about 95% of the bags would analyze between 20+2 (0.024) and 20-2 (0.024); and say 99% would analyze between 20+3 (0.024) and 20-3 (0.024).

To manufacture a dry-mixed fertilizer furnishing three or more plant nutrients so that it meets the guaranteed analysis is not as simple as it may seem. It is very difficult to produce a non-segregating mixture that can be sampled and analyzed without errors and biases because of the variations in the size, shape and density of the raw materials and the inadequacies of the sampling and chemical control techniques. These difficulties are somewhat reduced if the fertilizer is a homogeneous granulated type.

These considerations almost compel a manufacturer to formulate his fertilizers with a wide margin of safety in order to avoid penalties and maintain a reputation for quality. The result is that most fertilizer mixtures on the market show overruns in the analysis. Illustrations of typical cases of the results of such formulating, taken from plant records, will be given below.

The best way to show what overruns can mean in actual money losses is by citing some actual data taken from several fertilizer plants which will be identified only by letter. The first illustration is for nitrogen overruns.

Example 1—February, 1956

PLANT X—Nitrogen Overruns

TABLE X—Nitrogen Contents							
Grade	Tons shipped*	Average Analysis			Nitrogen as N		
		N %	P ₂ O ₅ %	K ₂ O %	Tons, theoretical	Tons, actual	Tons, deviation
3-12-12	430	3.32	11.65	12.61	12.90	14.28	+1.38
4-16-16	585	4.34	15.48	16.12	23.40	25.39	+1.99
4-24-12	45	4.37	22.60	12.59	1.80	1.97	+0.17
5-10-15	73	5.09	11.40	15.26	3.65	3.72	+0.07
5-20-20	532	5.20	19.50	19.90	26.60	27.66	+1.06
10-10-10	80	10.07	10.45	10.08	8.00	8.06	+0.06
12-12-12	690	11.53	12.58	12.41	82.80	79.56	-3.24
				Totals	159.15	160.64	+1.49

*Grades actually analyzed.

How It Is Calculated

- Step 1. Tabulate the tons shipped of each grade and record the average monthly analysis of each grade.
- Step 2. Do the following calculation (Example 4-16-16)
 - a. The tonnage of theoretical nitrogen in the grade (Tons × % N)
585 × .04=23.40 tons of nitrogen
 - b. Tons of actual nitrogen in grade: (Tons × % N found)
585 × 0.0434=25.39 tons
- Step 3. Calculate the extent of deviation from the grade (Actual minus theoretical)

$$\begin{array}{r} 25.39 \text{ tons actual} \\ \text{minus } 23.40 \text{ tons theoretical} \\ \hline \text{TONS } +1.99 \end{array}$$
- Step 4. Add the theoretical tons and actual tons as shown in the above tables. The number of tons which have deviated are added algebraically and give a cross check on the calculated totals.
- Step 5. Calculate the overrun for the month in dollars.
+1.49 tons × \$156/ton=\$232.44
When this study was made nitrogen was valued at \$156 per ton, delivered Plant X.
- Step 6. The same series of calculations is used to determine the dollar value of the available P₂O₅ and the potash K₂O. Then the dollar values of the averages for each raw material are added.
- Step 7. This same procedure is followed for each month of the fertilizer year. Then the overruns in tons and/or dollars are plotted on a graph.

Example 2—Year 1956

TABLE 1—Cost of Nitrogen, \$156 Per Ton

Month	Tons, deviation	Dollar value
January	+ 0.68	—\$ 106.80
February	+ 7.60	+ 1,185.60
March	+ 4.48	+ 698.88
April	+ 16.48	+ 2,570.88
May	+ 40.40	+ 6,302.40
June	+ 3.29	+ 513.24
July	+ 2.45	+ 382.20
August	+ 0.43	+ 67.08
September	+ 3.49	+ 544.44
October	+ 18.21	+ 2,840.76
November	+ 0.54	+ 84.24
December	+ 11.65	+ 1,817.40
Cumulated for year	+ 66.64	+ \$10,395.84
Average per month	+ 5.55	+ \$ 866.32

(+) indicates above guaranteed amount.
(-) indicates below guaranteed amount.

At Plant X, for the year 1956, the overruns for P₂O₅ and K₂O were +\$24,847.64 and \$3,510.62, respectively, making a grand total for the three nutrients of +\$38,754.10. The data are detailed in the following table. The same procedure was followed for determining the P₂O₅ and K₂O overruns that was used for the nitrogen calculations.

TABLE 2—Year 1956

PLANT X—Overruns in Fertilizer Plant Nutrients

Month	N, \$156/ton		P ₂ O ₅ , \$82/ton		K ₂ O, \$69/ton	
	Tons	Value	Tons	Value	Tons	Value
January	+ 0.68	—\$ 106.80	+ 23.29	+ \$ 1,909.78	+ 3.04	—\$ 209.76
February	+ 7.60	+ 1,185.60	+ 11.80	+ 967.60	+ 14.60	+ 1,007.40
March	+ 4.48	+ 698.88	+ 46.87	+ 3,843.34	+ 13.08	+ 902.52
April	+ 16.48	+ 2,570.88	+ 48.79	+ 4,000.78	+ 4.99	+ 344.31
May	+ 40.40	+ 6,302.40	+ 92.95	+ 7,621.90	+ 24.01	+ 1,656.69
June	+ 3.29	+ 513.24	+ 20.91	+ 1,714.62	+ 20.31	+ 1,401.39
July	+ 2.45	+ 382.20	+ 6.62	+ 542.84	+ 2.10	+ 144.90
August	+ 0.43	+ 67.08	+ 5.98	+ 490.36	+ 3.14	+ 216.66
September	+ 3.49	+ 544.44	+ 26.96	+ 2,210.72	+ 6.14	+ 423.66
October	+ 18.21	+ 2,840.76	+ 15.37	+ 1,260.34	+ 8.32	+ 574.08
November	+ 0.54	+ 84.24	+ 1.79	+ 146.78	+ 0.91	+ 62.79
December	+ 11.65	+ 1,817.40	+ 1.69	+ 138.58	+ 2.20	+ 151.80
Cumulation for year	+ 66.64	+ \$10,395.84	+ 303.02	+ \$24,847.64	+ 50.88	+ \$3,510.62

Note: Plus (+) indicates overruns above guaranteed amount.
Minus (—) indicates below guaranteed amount.

Tons shipped, 64,500; tons analyzed, 60,757; per cent tonnage analyzed, 94.2.

Importance of Control Function

Reducing losses due to averages in the formulation by means of control data is one benefit of the chemical control function. Applications of the method can be made to other functions. Data such as given in the previous examples serve to bring home to management the importance of the chemical control function. They also could be used to persuade chemical control officials that many of the standard analytical procedures are not always adequate for the accurate determination of the plant food elements in a fertilizer mixture and that the tolerance limits for some grades of fertilizer should be widened.

The farmer is the beneficiary of the overruns in marketed fertilizers. A rough estimate of the annual value of the total plant food in such overruns in recent years brings the amount to over \$6,000,000. This is a high cost to the industry as insurance against penalties if overages in the guaranteed analysis are there for this purpose. The manufacturer receives no credit for the overages.

Two Reports of Overruns

In this connection, it is pertinent to refer to two recent official reports of the value of overruns, one from Virginia, the other from Texas.

In the Virginia annual report of fertilizer sample results for the fiscal year 1956-57, (1) the average dollar value per ton of mixed fertilizer sold in that state, based on the manufacturers' guarantee was \$45.60; the average value based on the chemical analysis was \$46.91. The difference, namely \$1.31 represents the value of the overrun in the average mixed fertilizer of which 4,459 samples were collected and analyzed. During the 1956-57 fiscal year a total of 666,276 tons of mixed fertilizers were sold in Virginia. Therefore, it is fair to state that on the basis of the previous calculations, the total value of the overruns on this tonnage amounted to \$873,821.00 (obtained by 666,276 × \$1.31).

The Texas Agricultural Experiment Station Bulletin 881(2) reports that in the fiscal year ending June 30, 1957, the average per ton value of fertilizer sold in Texas that year was \$60.00 based on the manufacturers' guarantee analysis; and the average per ton value based on the state's chemical analysis was \$61.01, the difference between these two values, \$1.01 represents the value of the overrun in the average ton. The total tonnage represented by the samples analyzed amounted to 595,175 tons, which multiplied by the per ton value of the overrun, \$1.01, totals \$601,126.75. These are typical examples of the situation in most states.

We are living at a time when change in all phases of our economy seem to be occurring at an accelerated pace. The fertilizer industry certainly has gone through tremendous changes in the past decade in both raw materials supplies and in manufacturing processes. Much attention has been focused by the industry on agronomic developments and sales techniques, and to the improvement of other phases of its operations particularly in converting to granulation and ammoniation.

However, but little or scant attention has been given to statistical quality control. However, we feel that as the industry becomes more and more oriented in which chemical engineering predominates, statistical methods will receive favorable consideration from the engineers responsible for production.

The National Plant Food Institute is currently sponsoring a chemical control research project under the supervision of the writer. This project is being conducted in cooperation with the Association of Official Agricultural Chemists and the Association of American Fertilizer Control Officials.

With the guidance of two nationally known statisticians* and the cooperation of three state control chemical laboratories this research promises to make a needed contribution to the improvement of sampling and chemical analytical methods for the industry. It is believed that the results of the joint research program may substantially reduce the overruns now so common in the industry through these anticipated improvements in control techniques.

(1) Virginia Dept. Agr. Bulletin, November, 1957, page 15.

(2) Analyses of Commercial Fertilizers sold during 1956-57.

*Dr. W. Edwards Deming and Dr. A. J. Duncan.

Phosphorus Water Solubility Experiments Reviewed at Kansas Dealers' Conference

MANHATTAN, KANSAS—More than 100 fertilizer dealers and representatives attended the Tenth Annual Fertilizer Conference in Manhattan, Kansas, Dec. 9-10. Most of the research for the past year dealt with water solubility of phosphorus and its significance to crop response.

In addition to speakers from seed companies and Kansas State College, reports were given by specialists from experiment stations at Mound Valley, Garden City, Columbus, Hutchinson, Thayer, Concordia and Champaign, Ill. E. A. Cleavinger and R. A. Bohannon, extension specialists from Manhattan, served as chairmen of the conference.

Results of some of the phosphorus experiments with small grains were presented by Floyd W. Smith, professor at Kansas State College. Several experimental plots at Kansas State and other stations attempted to evaluate the yield response of wheat to various mixed fertilizers and to determine the significance of water solubility of phosphorus in mixed fertilizers in relation to yield.

Results of experiments at Powhattan and Manhattan showed that the effects of fertilizer on wheat yields were not too pronounced, Dr. Smith said. At Manhattan, it appeared that the fertilizers of the 1-4-0 ratio were more effective than were those with higher proportions of nitrogen. Within this group there was no indication that water solubility of phosphorus was a significant factor in determining the final effectiveness of the fertilizer.

With oats at two locations near Manhattan, it was found that no consistent pattern of behavior existed when highly soluble ammonium phosphates were compared with fertilizers of lower phosphate solubility. In the 1-4-0 group of fertilizers, the ammonium phosphate (11-48-0) seemed to be slightly above the ammoniated superphosphate (8-32-0). However with the 1-2-1 group, the ammoniated superphosphate (10-20-10) was slightly above the ammonium phosphate (12-24-12). The 1-1-1 group appeared to have no advantage as far as the completely water soluble materials were concerned.

V. H. Peterson, superintendent of the Columbus-Thayer Experiment Field, reported on the potash fertilizer experiments with alfalfa. The plots were established in 1955 to measure the yield response of alfalfa and to figure the importance of subsoil potassium as far as potash needs were concerned. No beneficial effects upon the yield of alfalfa were observed from either the 1955 or 1956 applications, according to Mr. Peterson. Applying various grades of mixed fertilizer increased the yield at the Thayer Experiment Field in 1957. No distinct pattern of behavior for the various grades of fertilizer was indicated.

Four trial experiments with fertilizer applied to irrigated corn were conducted in the Kansas River Valley. The greatest fertilizer need was nitrogen. The use of 80 lb. of nitrogen per acre increased yields by an average of 12.6 bu. per acre. Use of 120 lb. gave an increase of 14.7, and 160 lb. of nitrogen gave an increase of 11.4 bu. per acre.

Adding 160 lb. of available P_2O_5 gave no increase in yield. In fact a slight reduction was noted. Comparing urea and ammonium nitrate as sources of nitrogen for irrigated corn, it was noted that the average effects were nearly alike. Ammonium nitrate tended to have an advantage at all applications. Dr. Smith and D. L. Thurlow, soils instructor at Kansas State College, prepared reports on the solubility and particle size of phosphatic fertilizer for corn in ad-

dition to the irrigation studies on corn.

Studies on the effect of fertilizers on grain sorghums were varied with many plots showing little response. Dry weather was considered a major factor in failure to get more certain results. Where moisture was available there were notable yield increases.

Calvin C. Burton, representative, Corneli Seed Co., and George Reifsteck, consulting agronomist at Champaign, Ill., presented talks on "Plant Food Demands and Plant Food Delivery Patterns." Fertility trials at Concordia, Kansas were described by R. J. Raney, superintendent at the Concordia Experiment Field.

Other topics discussed and the persons taking part were: soil test studies, Mr. Bohannon; fertilizer investigations with truck crops, C. A. Hall, professor of horticulture at KSC; nitrogen-carbon changes in Kansas soils, J. A. Hobbs, professor of soils, KSC; rotation fertility trials at Mound Valley, F. E. Davidson, superintendent of Mound Valley Experiment Station; grain sorghums on sandy soils, R. B. Herring, agronomist at Garden City branch Experiment Station; and effect of rotations and fertility amendments on irrigated sugar beets, Don Grimes, irrigation assistant, Garden City Experiment Station.

How to Get Information To the Farm Is Topic of Nitrogen Conference

ST. PAUL, MINN.—About 1,000 farmers, fertilizer manufacturers, fertilizer dealers and soils research workers are expected to attend a nitrogen conference Feb. 20-22 at the Lowry hotel in St. Paul.

Sponsored jointly by the Minnesota fertilizer industry committee of the Midwest Soil Improvement Committee and the University of Minnesota, the conference will feature a roundup of the latest information on nitrogen fertilizer use.

The conference will be keynoted Thursday, Feb. 20 by Dr. Malcolm H. McVickar, chief agronomist for California Spray Chemical Corp., Richmond, Cal. He will talk on the question, "How can we work as a team to put soil fertility facts to work on the farm?"

Following an address by Harold Macy, dean of the University's institute of agriculture, a panel of university men, commercial representatives, a banker and a farmer will discuss "Our part in getting the job done."

Speaking on this panel will be Dr. W. P. Martin, head of the University soils department; Roland Abraham, assistant director of the Minnesota agricultural extension service; Proctor Gull, chief of agronomy development section for Spencer Chemical Co., Kansas City, Mo.; H. E. Hartzler, Manhattan, Kansas; Les Boler, farmer near Winnebago, Minn.; and Dick Bird, banker at Red Wing.

An evening open house will be held Feb. 20 in the new University soils building, which is expected to be completed by that time.

The keynote speaker for the Friday, Feb. 21, session will be George D. Scarseth, director of the American Farm Research association, Lafayette, Ind., who will discuss "Nitrogen—our big need." "Nitrogen, soil organic matter and soil structure" will be discussed by George Blake, University of Minnesota soils researcher.

"Nitrogen and the life of the soil" will be the topic for a talk by E. L. Schmidt, University soils scientist, and John Grava, supervisor of the University's soil testing laboratory,

will explain "Nitrogen availability measurements in soils."

Visitors to the conference will be admonished "Don't forget phosphorus, potash and lime," by A. C. Caldwell, soils research worker.

"Crop production possibilities for Minnesota soils" will be viewed by Charles Simkins, extension soils specialist at the University, and Ermond Hartmans, extension farm management specialist, will talk on "The economics of production potentials."

A panel on "The role of nitrogen in production potentials" will be a feature of the Feb. 21 afternoon session. Speakers will be J. M. MacGregor and P. M. Burson, University of Minnesota soils scientists; R. A. Young, soils research worker from North Dakota agricultural college and M. R. Teel, agronomist from Purdue University.

Laurie Peterson, Midland Cooperative, Inc., will speak on "Industry's program for getting the job done in Minnesota."

The conference will wind up with a tour of the St. Paul Ammonia Products nitrogen plant south of the Twin Cities Saturday morning, Feb. 22.

Potash Institute Has New Booklet Available

WASHINGTON—How the farmer places his fertilizer can mean the difference between a full crop, a poor crop and no crop at all, according to a recent fertilizer placement booklet issued by the American Potash Institute.

The latest efficient methods of placing fertilizer for row crops are discussed for busy agricultural workers in the new 40-page booklet, Fertilizer Placement, which is free in reasonable quantities from the Institute, 1102 16th St. N.W., Washington.

Presented in the interest of better farming methods and results, the illustrated booklet features articles from a recent issue of the Institute's magazine, Better Crops With Plant Food. The major articles, developed in a semi-technical style, were written by four authorities in modern fertilization practices:

Dr. S. L. Tisdale, southeastern director, National Plant Food Institute; Dr. A. J. Ohlrogge, Purdue University scientist; Dr. D. P. Satchell, Pennsylvania State University specialist in fertilization and soil phosphorus; and Dr. R. L. Cook, head of the soil science department of Michigan State University.

The booklet presents the safest, most efficient methods of placement, as well as certain principles for getting effective nutrient use from fertilizer bands. It discusses how proper placement is beginning to rank with proper amounts in the minds of today's farmers, how improper placement limits crop stands.

It surveys briefly what specialists in different sections of the nation say about placement and why.



Keith T. Henson Edwin A. Wyatt

Collier Adds Two to Service Staff

LOS ANGELES—Two agricultural specialists have been added to Collier Carbon and Chemical Corp.'s agricultural technical service staff.

Keith T. Henson has been assigned to testing and developing liquid fertilizer application equipment and Edwin A. Wyatt as a technical service representative, according to R. L. Luckhardt, supervisor, agricultural technical service.

Mr. Henson is a graduate of Oregon State College where he received B.S. and M.S. degrees in agricultural engineering. Before coming to Collier, he was a sales engineer for Wallace and Tierman, Inc., Monrovia, Cal. He is a native of Medford, Ore.

Mr. Wyatt attended the University of California at Berkeley and concentrated on industrial and agricultural engineering courses. He was recently discharged from the U.S. army engineering corps with the rank of 1st lieutenant. Mr. Wyatt is a native of Covina, Cal. Both men are married and make their homes in Anaheim, Cal.

Kenneth G. Clark Heads ACS Division

WASHINGTON—Dr. Kenneth G. Clark of the U.S. Department of Agriculture has been elected chairman of the American Chemical Society's division of fertilizer and soil chemistry for 1958. Dr. Clark, who is senior chemist with the Soil and Water Conservation Research Branch of the agriculture department's Bureau of Plant Industry, Beltsville, Md., succeeds Dr. Stacy R. Randle of the New Jersey Agricultural Experiment Station, New Brunswick, as chairman.

M. Dwight Sanders, director of research of Swift and Co.'s plant food division, Chicago, was chosen chairman-elect and Travis P. Hignett of the Tennessee Valley Authority, Wilson Dam, Ala., was named division secretary.

OREGON DEALER DAY

PORTLAND, ORE.—Fertilizer Dealer Day will be held at Oregon State College, Corvallis, Jan. 22, according to an announcement by Leon S. Jackson, secretary of the Pacific Northwest Plant Food Assn.

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Soil Moisture Conditions Boost 1958 Fertilizer Use Prospects In Iowa, Agronomist Reports

AMES, IOWA—For the tenth year, Iowa and midwest fertilizer manufacturers and dealers met with Iowa State College agronomists this month to discuss the various phases of the fertilizer industry.

Approximately 100 manufacturers and processors attended the industry conference Dec. 3 to hear discussions on recent research in the technical phases of their business. The following day, they joined some 400 fertilizer dealers in their annual dealers' short course. Here they were brought up-to-date on the newest recommendations on fertilizer use. They also discussed the services and role of the fertilizer dealer and other matters important to the business of merchandising plant foods.

Prospects for fertilizer use and response in 1958 have been greatly improved by favorable soil moisture conditions in most of Iowa, agronomist Joe Stritzel of the college reported.

With normal to above normal moisture as we go into the winter, crop growth prospects for next year are good. This will mean that fertilizer rates can be increased over those of recent dry years with excellent chances for top response and increased profit through fertilizer use.

Mr. Stritzel also urged a systematic approach to fertilizer use. He said fertilizers are most profitable when applications are based on accurate soil tests, the crop rotation as a whole and research findings on placement and sources of crop nutrients. The wise farmer must modify his fertilizer program according to his capital, year-to-year moisture conditions, stand levels and fertilizer carry-over.

Commenting on water solubility of phosphorus, John R. Webb, agronomist, also of the college staff, indicated that field experiments show a marked advantage in having a high percentage of water-soluble phosphorus in starter fertilizers applied in the row for corn at planting time. Water-soluble phosphorus sources consistently have given larger early season growth increases and larger yield responses than phosphorus sources of low solubility.

Mr. Webb said that about 90% of the corn yield increase due to water solubility is reached with fertilizers having 50 to 60% of the phosphorus in a water-soluble form. Increasing the content of water-soluble phosphorus to about 80% adds most of the remaining 10% of yield increase.

However, water solubility of phosphorus is of less importance when the fertilizer is broadcast or plowed under for corn, Mr. Webb said. And a high degree of solubility has appeared to be of no advantage when fertilizers are broadcast and disked in for oats on acid or neutral soils.

Also commenting on the use of a row fertilizer, Mr. Stritzel said that the percentage of water-soluble phosphorus present in a fertilizer is one of two important considerations. The other important factor is placement of fertilizer in relation to the seed.

Regardless of the source used for hill or row fertilizer for corn, placement of the material about 2 inches to the side and 2 inches below the seed is preferred over the more shallow split-boot placement.

When the percentage of water-soluble phosphorus in liquid and dry fertilizers is the same, the two types of fertilizers are equal for hill or row placement for corn. Liquids should be superior to dry sources when the dry fertilizers have low percentages of

their phosphorus in water soluble form, Mr. Stritzel said.

Frank Schaller, another college research agronomist, discussed recent tests on effects of starter fertilizer on grain sorghum. He said sorghum responded about like corn. The crop responds well to phosphorus and nitrogen when those elements are limiting. Further work is needed, however, before definite conclusions can be made on the use of fertilizer for sorghum.

Carry-over of fertilizer from one crop to another came in for considerable discussion. In pointing out that any fertilizer program should take carry-over into account, Lloyd Dumenil, research agronomist, stressed these important factors:

Nitrogen carry-over from nitrogen-fertilized corn may range from nothing to 50%. The average is about 25% when medium rates of application have been used. Carry-over is usually small after a wet season, but may be great after a dry season.

The amount of nitrogen carry-over is affected by heavy fall or spring rainfall, even after dry seasons. Heavy water movement in the soil moves nitrogen down out of the root zone. Nitrogen losses due to leaching are less likely to be serious on medium textured soils than on light soils.

Nitrogen carried over from one season to the next is best utilized by corn.

Phosphorus carry-over has been consistently higher than that from other nutrients. It also lasts longer. Tests have shown that 50 to 60% may carry over to the second year, and 25 to 30% to the third year, when 40 to 80 lb. of the nutrient are applied per acre. Phosphorus carry-over is used most profitably by corn, but small grains and legumes also respond well.

Carry-over from potassium depends upon how crop residues are handled. If straw or stover is removed, it's about 25 to 35% for medium rates. If crop residue is left on the field, carry-over of potassium may reach 45 to 60%.

Although carry-over of any of the nutrients varies considerably, it usually adds to fertilizer profits. It often pays fertilizer costs in the second and third years after application. However, carry-over will furnish only part of the fertilizer needed for maximum profits in most fertilizer programs, Mr. Dumenil concluded.

Soil testing and sampling services

to customers offer opportunities to the fertilizer dealer to increase sales, G. W. Hawkins of the college soil testing laboratory told the group. Such services also increase the confidence of the customer. He said that a number of Iowa fertilizer dealers have found an opportunity for service to their customers through a good soil sampling program.

The fertilizer dealer can help the farmer in developing a fertilization program based on dependable recommendations. Fertilizer use based on reliable soil tests should result in more efficient use of fertilizer and greater profits for the farmer. Alternative rates of fertilization available through Iowa State College recommendations offer the producer an opportunity to develop a fertilization program that more nearly meets his individual needs, Mr. Hawkins said.

Fertilizer recommendations are a great help in creating interest in fertilizer use and in making the individual sale. Dealers who have a soil sampling service indicate they have little trouble selling fertilizer once they have the recommendations.

Dealers handle the soil sampling service in several different ways, Mr. Hawkins reported. Some dealers take the sample, send it to the college soil testing laboratory and pay the cost of the test. Other dealers charge the farmer for the cost of taking the sample and having it tested, and refund the cost if the farmer buys his fertilizer from them. Still others have soil sampling equipment to loan the farmer and have a supply of soil sample cartons and information sheets on hand. The farmer takes the soil sample, pays the cost of the test and the dealer sends it in for him.

A number of Iowa dealers have successful soil sampling programs. Maas Grain and Feed Co., Iowa City, pushed fertilizer sales to 725 tons in 2 years. Bob Colwell, sales manager, gives primary credit to the soil sampling program. James Wagner of Farmer's Hi-Yield in Blencoe reported that several out-of-state landlords have turned their fertilization program over to them. He said he was sure the reason they have these accounts is the fact that they base fertilizer applications on Iowa State College recommendations.

The Farmers Cooperative Elevator in Boyden and the Farmers Cooperative Elevator in Sheldon indicated that soil sampling has made it possible for them to sell a lot of fertilizer that they could not have sold otherwise.

Under present policies, the Federal Interstate Highway program does not offer great potential for fertilizer sales for the establishment and maintenance of vegetable growth along the right-of-ways, it was reported. Iowa's share of this road building program is 731 miles, involving 36 acres per



Sylvester Grant, Jr.

SOHIO APPOINTMENT—H. J. Coleman, sales manager of the Sohio Chemical Co. in Lima, Ohio, has announced the promotion of Sylvester Grant, Jr., to the post of technical service representative, assisting H. H. Tucker, director of agricultural technical services of the company. Formerly, Mr. Grant performed customer services in Sohio's sales service and development laboratory. He came to Sohio Chemical in 1956 from the Vicksburg, Miss., works of the Spencer Chemical Co. At Spencer Chemical his experience was in its research department, and in product control as operating supervisor. Mr. Grant is a graduate chemist from the University of Louisville with additional training in chemical engineering.

mile or a total of 26,316 acres. Under present procedures, only backslopes having a vertical elevation of 5 feet are fertilized. This means that, on the average, only 3 out of the 36 acres per mile will be fertilized, or a total of 2,193 acres over the next 10 years. Preliminary experimental work by Dr. Paul Peperzak, recently in the agronomy department at Iowa State, indicates that more fertilizer might be used on some soil materials for the establishment of vegetative cover along new highways.

Pear Growers Get Good Word on Infestation

SACRAMENTO—Pear growers attending the annual meeting of Sacramento County pear growers association were assured that California growers need have little fear of infestation by the pear pest now prevalent in the Pacific Northwest.

This optimistic word was brought by Harry O'Reilly, plant pathologist from the University of California at Davis, one of a group of scientists who visited the Yakima, Wash., pear growing district to study the situation.

Mr. O'Reilly said the decline has been noted in hundreds of orchards and thousands of trees and the cause is still unknown. He noted that it attacks mature trees for the most part and no particular varieties are exempt. He said specialists are testing effects of new miticides and fungicides to reach a control.

Dr. Harold Madsen, entomologist from the Berkeley campus of the University of California, reported on spider mite control, codling moth control and pear psylla. He said that codling moth had been controlled effectively on one test plot by guthion.

TURF MANAGEMENT COURSE

NEW BRUNSWICK, N. J.—A turf management course has been scheduled Jan. 20-23 at Rutgers University here. Topics on the program will include soil management, fertilizers, turf plants and insect and disease control methods.



FIRST SPADE OF EARTH—Turning the first spade of earth for five new buildings being erected at the Abbott Laboratories Research Farm near Mundelein, Ill., is James F. Stiles, Jr., chairman of the board of Abbott. From left to right are Floyd K. Thayer, vice president and director of chemical sales; Elmer B. Vliet, vice president and scientific administrator; Mr. Stiles; Henry C. Spruth, head of agricultural farm research; Dr. Marlin T. Leffler, director of chemical and agricultural research, and Dr. Robert H. Hollis, manager, veterinary division. Crop growth studies at the farm will include experiments with gibberellic acids and other plant growth stimulants.

CED Recommends Ways to Eliminate Farm "Burden"

WASHINGTON—A shift to free markets in agriculture and the adoption of land retirement plans which would help farmers move to other occupations were recommended recently by the Committee for Economic Development as ways to eliminate the "burden" of the national farm program.

The CED statement, "Toward a Realistic Farm Program," called for a shift to free markets during a limited transition period in which price supports would be reduced and farmers would be making the movement out of agriculture.

Criticizing the national farm program "which cost taxpayers almost \$25 billion in 25 years and still left major farm problems unsolved," the committee recommended six major principles "to help the farmer share in national prosperity." The six points are also aimed at reducing the cost of agricultural programs to the non-farm population.

Points Listed

The points are as follows:

- (1) Betterment of the condition of the farmer should be a conscious objective of farm policy to be accomplished by means consistent with free markets and national well-being.
- (2) Farm programs must not only be consistent with each other, but with other national policies.
- (3) Special approaches are needed to assist the low income farmer.
- (4) The welfare of the "commercial farmer" can best be promoted by programs which adjust production to demand.
- (5) The "commercial farmer" must still be protected by federal policy from forces beyond his control making for income instability.
- (6) Federal farm programs must be insulated against special interests seeking privileges inconsistent with the national welfare.

Advisors Recommended

To accomplish this last point the committee recommended an Agricultural Advisory Board to advise on discretionary policies. The board, it said, should be comprised of outstanding citizens to be appointed by the President, for staggered, long terms.

The statement summed up objectives by stating: "The objectives of a realistic agricultural program—that is, a program that tends in fact to assist the farmer to gain a better livelihood, give public outlays a definite, practical goal, and to serve the national objectives of economic growth, high employment, economic uses of resources and over-all free world strength—must be to create conditions in which the commercial farmer can live with free markets without undue risk."

Three simultaneous lines of attack were suggested: "One directed at reducing presently existing surplus stocks of farm products; one at bringing resources devoted to agriculture into line with demand, at prices which provide reasonable returns; and a third to bring farm prices to levels at which output can be sold without government support."

While emphasizing the importance of reducing huge surpluses, the committee warned that some programs designed for this purpose, notably foreign barter programs, run the risk of infringing upon normal commercial markets.

The statement also criticized sales abroad under so-called "two-price system" as a form of "dumping."

Analyzing the price support program, the statement said more than half of the farms in country produce too little to receive any benefit from price supports, more than half of the farm population does not receive price supports and, most important,

the price support system retards movement of resources out of agriculture, "which must, in the end, be the basic solution."

Also criticized was the Soil Bank program, not for its objectives, but because of the "standards and procedures by which it is operated."

"A major overhaul of procedures, based on a change in philosophy away from the income-price support view of farm assistance, is required to get an effective Soil Bank into operation," the statement said.

The statement was issued by the program committee of the CED Research and Policy Committee. Frazar B. Wilde, president, Connecticut General Life Insurance Co., is chairman. The report was prepared by J. Cameron Thomson, chairman of the Northwest Bancorporation, who served as chairman of the subcommittee on agriculture.

CED is a committee of 150 leading business executives and scholars who work together on studies and recommendations to promote a high level of national employment and maximum economic growth.



John R. Fisher

Robert P. Harrison

Dow Appoints Two Field Specialists

MIDLAND, MICH. — Robert P. Harrison and John R. Fisher have been appointed field specialists in agricultural chemical developments for the Dow Chemical Co.

Mr. Harrison will make his headquarters in Washington, D.C., and will be engaged in research and development work on insecticides, soil fumigants, space and commodity fumigants, fungicides and veterinary and feed chemicals.

He will team with Dr. Mark G. Wiltse to provide technical assistance to agricultural experiment stations and extension services, the U.S. Department of Agriculture and indus-

trial research organizations in 13 eastern states.

Their territory includes Virginia, West Virginia, Pennsylvania, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire and Maine.

Mr. Fisher's headquarters will be in Seattle, and his territory will include Washington, Oregon, Idaho and Montana.

He will take over part of the territory serviced by Richard Raynor and Harold Lembright. Much of his time will be spent in research and he will be available to assist in research and development studies at state colleges, experiment stations, the USDA and industrial research organizations.

ORVAL J. REYNOLDS DIES

UNION GAP, WASH. — Orval J. Reynolds, 47, Washington Organic Fertilizer Co. vice president, recently died at his home here.

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AT NORTH DAKOTA MEETING—Scenes above are from the recent North Dakota Fertilizer Dealers' Conference, held in Fargo. In the left photo are, from left to right, Ken Stamus, Summers Fertilizer Co., Grand Forks, N.D., Lyle Currie, executive secretary of the Red River Valley Potato Growers Assn., East Grand Forks, Minn., and Arlon G. Hazen, dean and director of agriculture, North Dakota Agricultural College. In the center photo are W.

R. Allstetter, vice president, National Plant Food Institute, Washington, A. R. Miesen, Northern Pacific Railroad agricultural agent, Fargo, Phil Stocker, Land O' Lakes, Minneapolis, and James Greene, Ashcraft-Wilkinson Co., Des Moines. The registration desk scene at the right shows Dr. Ralph A. Young, Dr. J. C. Zubriski and V. L. Weiser, all staff members of North Dakota Agricultural College.

Research Shows Profitable Returns from Nitrogen Use in North Dakota, Dealers Told

FARGO—Farmers, generally, in North Dakota who have given any attention at all to the plant food needs of their soils are pretty well convinced that phosphorus properly applied can produce profitable results—but now they are finding plenty of evidence that nitrogen also can contribute definitely on the profit side of the farm ledger.

Facts along this line were presented to North Dakota fertilizer dealers who attended a one-day conference at the Agricultural College in Fargo Dec. 11. This was the annual session for dealers sponsored by the experiment station and extension service to keep the dealers up to date on research and farm experience in the use and application of commercial fertilizers. Nearly 200 dealers, industry representatives and farmers were on hand for the information-packed meeting.

Soils research men of the experiment station pointed out to the dealers that "profitable responses to nitrogen fertilizer applied on nonfallow land can be expected in at least 70% of the cases."

The results of 92 field trials with wheat and 15 with barley over the period 1948 to 1957 were cited as indicative of the favorable effect nitrogen fertilizer can produce on grain crops.

It was reported that the average increase in yield of all wheat trials carried on by the North Dakota station with nitrogen fertilizer was 83 lb. of wheat per 10 lb. of applied nitrogen. On all barley trials the average increase for 10 lb. of applied nitrogen was 201 lb. of grain.

Speakers calling this information to

the attention of the North Dakota dealers included R. A. Young, Armand Bauer, E. B. Norum and J. C. Zubriski, all of the college soils department.

These men expressed the need of developing a good nitrogen soil test, and for additional work to perfect supplementary techniques for predicting the most profitable rates to apply nitrogen fertilizer.

For instance, they pointed out, if the 30% of the wheat trials and the 20% of the barley trials which did not show a profitable response to nitrogen had been eliminated, "the average response of wheat would have been raised from 83 to 120 lb. and of barley 201 to 240 lb. for each 10 lb. of nitrogen used."

In his discussion of the question as to the best time to apply nitrogen fertilizer, Dr. Ralph A. Young, associate soil scientist, said that North Dakota soils do not supply available nitrogen in amounts adequate for maximum crop yields, except during the year immediately after summer-fallowing.

He said "application of nitrogen far in advance of seeding provides opportunities for a number of reactions to occur which may cause either loss of the applied nitrogen or result in decreased efficiency of it."

But, he said, the prospect of germination injury increases as rate of application in the row or in a band along the row at seeding time increases.

"Part of the fertilizer, then," Dr. Young said, "must be broadcast where moderate to heavy rates are to be used. Broadcast application at seeding time requires an additional field operation during a busy season. Application in the fall allows a desirable

distribution of labor and, if widely adopted, will result in improved efficiency of manufacture and distribution of fertilizer materials."

Armand Bauer, in charge of the soil testing laboratory at the North Dakota college, reported that to July 1, 1957, a total of 11,359 soil samples had been tested for North Dakota farmers.

He stated his conclusions of the basis of these tests as follows: "If the samples tested to date are truly representative of the soils in each area, the test used indicates that many of the soils in North Dakota are deficient in phosphorus, especially as it pertains to the production of small grains."

"This deficiency is, perhaps, most widespread in the Missouri River slope area. The smallest proportion of phosphorus deficient samples has been obtained from the northwest area. This area, as a whole, was the last to be put under cultivation, which may account, in part, for the more favorable phosphorus regime found in these soils."

Decision as to rates of available phosphate to recommend on small grains in North Dakota are being based on the results of trials in which several rates of phosphate fertilizer were applied on soils of varying phosphate levels. Trials of this type have been located in all areas of the state.

In nearly every case on soils "very low" in phosphorus, rates of application of 35 lb. or more have given desired responses and these rates are being recommended on such soils for grain crops.

Reporting on the findings of the North Dakota agricultural experiment station in devising its fertilizer recommendations for corn, Dr. J. C. Zubriski, stated that "many soils in North Dakota are not capable of supplying sufficient quantities of nitrogen and phosphorus, and in some cases potassium, to grow high yields of corn."

Dr. Zubriski said that these soils should be supplemented with proper commercial fertilizer to meet the high

nutrient needs of a large corn crop. But, he added, fertilizers will not substitute for other desirable management practices required to obtain high yields.

In the North Dakota trials farmers have obtained good results from a band application of fertilizer along the row or hill. The fertilizer recommended for band placement is generally a nitrogen-phosphate combination. On sandy soils a nitrogen-phosphate-potash combination is recommended. The amount of nitrogen that is safe to place in the band ranges up to 40 lb. an acre, the specialists said.

It was stressed by the North Dakota soils men that the correct placement of the fertilizer band with respect to the seed is about 2 inches to the side and about 2 inches below the seed level. They said: "The band placement of fertilizer in comparison with other methods of placing the fertilizer in the soil will generally produce the greatest return in increased yields per dollar invested in fertilizer. This placement should be given first consideration for fertilizing corn."

An explanation of the manner in which fertilizer recommendations for the guidance of North Dakota farmers and dealers are devised was given by V. L. Weiser, soils specialist of the extension service. With examples, Mr. Weiser went through the procedure being used, and illustrated the various formulas that are acceptable in providing the desired amounts of fertilizer materials.

Generally, he said, the amounts of phosphate recommended are for applying with drill or planter attachment. When the phosphate is to be broadcast, the attachment application rate of phosphate should be doubled or tripled in order to obtain a similar response in the crop being fertilized. The amounts of nitrogen, however, remain the same, whether drilled or broadcast, he said.

One of the helpful features of the 1958 program for the dealers' con-



NORTH DAKOTA SCENES—Pictured above are gatherings at the recent North Dakota Fertilizer Dealers' Conference. In the left photo, from left to right, are (front) Dr. J. D. Campbell, Olin Mathieson Chemical Corp., Omaha, and William Mierke, Tennessee Corp., Atlanta; (back) R. A. Hedlin, University of Manitoba, Winnipeg, M. K. Reusch, Consolidated Mining & Smelting

Co., and George W. Martin, Olin Mathieson Chemical Corp., Omaha. In the center photo are Harold Amstrup, Dow Chemical Co., Minneapolis, William Stolt, Summers Fertilizer Co., Grand Forks, N.D., and Bernie Maddock, Agsco, Moorhead, Minn. At right, Ralph Willits, Spencer Chemical Co., Minneapolis, chats with Dr. E. B. Norum and Armand Bauer, of the N.D. staff.

ference was a prepared booklet presented to those who attended. The booklet outlined in detail the information presented by the college speakers at the conference.

W. R. Allstetter, vice president of the National Plant Food Institute, Washington, D.C., discussed factors which influence farmers in making their decision to use or not to use fertilizer, basing his remarks on recent research done on this subject. (See page 1 of the Dec. 16 issue of Croplife.) Farmers, he believes, are most influenced by soil test recommendations, reasonable credit terms, educational demonstrations such as are arranged by county agents and the extension service, and by what they read, hear and see in publications, and on radio and television. He paid tribute to the educational work and research being done by the extension services and experiment stations, pointing out that the farmer is most influenced by these efforts, followed by the advice of neighbors, dealers and others.

Dealers in fertilizer in North Dakota are being recognized by the college and its extension and research branches for their important influence on the sound development of fertilizer practices in the state. Arlon G. Hazen, dean and director of agriculture at the North Dakota Agricultural College, made this clear in his opening remarks to the group.

He indicated the college considers it an important opportunity to keep dealers informed on fertilizer research and progress through the annual conferences held at the college and at several points in the state each year.

Half-day conferences for dealers are to be completed in December, as a follow-up to the state conference in Fargo. These sessions, each starting at 1:30 p.m., were listed for Devils Lake Dec. 13, Dickinson Dec. 19, Mandan Dec. 20 and Minot Dec. 27. Soils representatives from the college are appearing at all of these points.

Oregon Ragweed Control Program Shows Good Results

PORTLAND, ORE.—Public health authorities announced recently that the air over downtown Portland this year was completely free of ragweed pollen for the first time in years. They also said the pollen count was down sharply in other western Oregon areas.

Absence of the allergy-producing pollen was attributed to the new ragweed control program begun this summer in western Oregon by the Oregon Department of Agriculture through a \$50,000 appropriation voted by the 1957 legislature.

Now the department has just released its first full report of Operation Ragweed, which opened Aug. 7 when George H. Moose, agronomist, arrived from Nebraska to supervise field operations. Five days later he made a trial run with a special spray truck designed for the ragweed job.

Nearly 5,000 acres on which ragweed infestations in varying concentrations were found were sprayed. Considerable ragweed not previously reported was found in the survey work carried on ahead of actual spraying.

The state equipment was used to spray roughly 3,500 acres. Another 1,500 acres was covered by contract sprayers engaged and paid by the department.

WILLIAM A. SEAY PROMOTED
LEXINGTON, KY.—Dr. William A. Seay has been named to the new post of vice director of the University of Kentucky Experiment Station to supervise research and coordinate experimental work. For the past year he has been administrative assistant to Frank J. Welch, dean of agriculture.

Numerous Agricultural Pests Form Topics For Discussion at Meeting

AUBURN, ALA.—The imported fire ant, control of peanut pests, 1958 cotton insect control recommendations, systemic insecticides, herbicides and rodents are a few of the subjects to be covered at the "Pest-O-Rama" to be held at the state coliseum in Montgomery, Ala. Jan. 20-21.

Pest-O-Rama is a presentation of all phases of pest control from technical information to actual application of chemicals. Featured speaker of the program will be U.S. Congressman George Grant of the House Agriculture Committee who will discuss the 1958 agricultural program as related to pest control. Joe Burger, lecturer, will discuss the sale of agricultural chemicals.

Others appearing on the program are: Dr. Coyt Wilson, associate director of the API agricultural experiment station; Dr. Kirby Hays, API station entomologist; Dr. F. S. Arant, head API entomology department and Dr. A. F. Verrall, chief of forest disease research Southern forest experiment station, New Orleans.

W. A. Ruffin, extension entomologist and chairman of the attendance

committee has recently held eleven dinner meetings throughout Alabama for county extension personnel to encourage their cooperation in getting farmers to attend Pest-O-Rama.

The publicity committee for Pest-O-Rama consists of R. J. Smith, American Cyanamid Co., Montgomery, chairman, R. R. Chesnut, API extension service editor, and K. B. Roy, publications department head, API agricultural experiment station. W. G. Eden, secretary of the association is also working with the publicity committee.

The meeting is sponsored jointly by the AACEP and the API agricultural experiment station and extension service.

GRASS SEED OUTPUT GROWS

SALEM, ORE.—Hollis Ottaway, Marion County agent, reports certified orchard grass seed production is on the increase in Oregon. Behind the increase is production of Potomac, a new orchard grass variety recently developed by the USDA's Beltsville, Md., plant industry station. One Union and three Jefferson County farms covering 55 acres passed inspection this year and nine Marion County growers obtained Potomac seed through the Oregon State College allocation committee to produce certified seed in 1958.

USDA Issues Bulletin On Stubble-Mulching

WASHINGTON—Stubble mulching—the farm practice of leaving crop residues on the soil surface—is proving generally successful in semi-arid regions of the United States for maintaining crop yields and controlling erosion, the USDA says.

Results of research to date on this farming technique are reported in a new USDA Technical Bulletin, No. 1166, "A Summary of Research Experience With Stubble Mulch Farming in the Western United States," by Austin W. Zingg and C. J. Whitfield of the Agricultural Research Service. Copies of the bulletin are available from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., at 30¢ per copy.

Bobby E. Ford in New Post with Monsanto

ATLANTA, GA.—Bobby E. Ford, New Orleans, a 1951 University of Arkansas graduate, will become assistant district manager of the Atlanta, Ga., agricultural sales office of Monsanto Chemical Co.'s Inorganic Chemicals Division, effective Jan. 1, 1958. He has been holding a similar position in that division's New Orleans office.

Books on Fertilizers And Their Use

MANUAL ON FERTILIZER MANUFACTURE—Second Edition

Vincent Sauchelli

A complete up-to-date revision of this well known book, that reviews in simple, everyday language the processes of manufacture of superphosphates, of ammoniation, and the formulation and preparation of mixed fertilizers. Indispensable to fertilizer plant supervisors and operators, and a valuable aid to research men and teachers. New chapters added: on plant nutrition, mixed fertilizers, ammoniation, granulation, revised and brought up-to-date. 80 tables of practical information \$4.50

SOIL FERTILITY AND FERTILIZERS (1956)

Samuel L. Tisdale and Werner L. Nelson

An advanced college text, for juniors and seniors, following backgrounding course in soils. Covers elements required in plant nutrition, their role in plant growth, and the soil reactions to these nutrients. Several chapters on manufacture, properties and agronomic value of fertilizers and fertilizer materials. Latter part covers soil fertility evaluation and use of fertilizers in sound management program. 430 pages, cloth bound \$7.75

PLANT REGULATORS IN AGRICULTURE

Dr. Harold B. Tukey

Published September, 1954. A text book giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarpy, abscission, prevention of preharvest fruit drop, delaying foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages \$5.50

THE CARE AND FEEDING OF GARDEN PLANTS

Published jointly by the American Society for Horticultural Science and the National Plant Food Institute.

An entirely new, one-of-a-kind book, it is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color \$3.00

AUXINS AND PLANT GROWTH

A. Carl Leopold

A 366-page book, complete with bibliography, appendix, and index, discusses the fundamental and applied aspects of growth hormone and synthetic auxin action in plants. These are of interest to all workers in agricultural chemicals—for weed control, flowering control, fruit set, flower or fruit drop and plant propagation. The text is divided into two sections, (1) fundamentals of auxin action, and (2) auxins in agriculture. These cover developmental effects of auxins, the physiological and anatomical effects of their application, the chemical nature of growth regulators, and methods of applying auxins and their persistence in plants and soils. Other subjects covered: rooting, parthenocarpy, flower and fruit thinning, control of pre-harvest fruit drop, flowering, dormancy and storage, herbicides, miscellaneous uses of auxins, and potentials of auxins and auxin research. \$5.00

Published by University of California Press.....

ECONOMIC AND TECHNICAL ANALYSIS OF FERTILIZER INNOVATIONS AND RESOURCE USE

By E. L. Baum, Earl Heady, John Pesek and Clifford Hildreth.

This book is the outgrowth of seminar sessions sponsored by TVA in 1956. Part I—Physical and Economic Aspects of Water Solubility in Fertilizers. Part II—Examination of Liquid Fertilizers and Related Marketing Problem. Part III—Methodological Procedures in the Study of Agronomic and Economic Efficiency in Rate of Application, Nutrient Ratios and Farm Use of Fertilizers. Part IV—Farm Planning Procedures for Optimum Resource Use. Part V—Agricultural Policy Implications of Technological Change. It presents new methodological techniques for more efficient handling of research problems related to fertilizers and provides more meaningful answers to problems of practical application \$4.50

HUNGER SIGNS IN CROPS—Second Edition

A symposium—published jointly by the American Society of Agronomy and the National Plant Food Institute.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color \$4.50

USING COMMERCIAL FERTILIZER (1952)

Malcolm H. McVickar

Dr. McVickar is chief agronomist of the National Fertilizer Assn. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trade-element plant foods. 208 pages, 106 illustrations, cloth bound..... \$3.50

COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955)

Gilbeart H. Collings

Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 522 pages \$8.50

APPROVED PRACTICES IN PASTURE MANAGEMENT (1956)

M. H. McVikar, Ph.D.

Outlines clearly and concisely how to have productive pastures to furnish high-quality forage for livestock, economically and efficiently. Written for grassland farmers. Covers the important activities associated with establishment, management and efficient use of pastures as grazing lands or as a source of fine winter feed for livestock. It is as specific as possible for all U.S. pasture areas. Twenty chapters, 256 pages, illustrated \$2.40

MANURES AND FERTILIZERS

A survey by the Ministry of Agriculture and Fisheries, dealing with soil analysis, inorganic fertilizers, waste organic substances and principles of manuring. In language to give the farmer basic principles of increasing soil fertility by the application of natural organic manures and synthetic inorganic fertilizers. Many important tables on quantitative data \$2.50

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BOLL WEEVIL REARING METHODS—Pictures of boll weevil eggs are rare, but even more remarkable than the pictures themselves is the fact that the eggs are completely removed from cotton, nor was cotton any part of the environment of the weevil which laid the eggs. This situation results from the work of Dr. Erma Vanderzant, Agricultural Research Service, U.S. Department of Agriculture, attached to the department of biochemistry and nutrition at Texas A&M College. Dr. Vanderzant has perfected a technique of rearing boll weevils without cotton through feeding them a special diet, a mixture of which is contained in the tin-foil container.

Over the mixture lies a thin layer of wax, which has been found necessary

since the weevils prefer eating after having punctured the coating with their long feeding proboscis. They also lay their eggs behind the protection of such a coating. In nature this protective layer would be the sides of a cotton boll. In the laboratory, Dr. Vanderzant uses wax. Close examination will show eggs behind the edges of the wax where the small feeding hole remains intact. Where the eggs are clearly visible, the wax has been stripped away to give the photo more contrast.

At the right is Dr. Vanderzant, who in addition to her scientific pursuits is the mother of two children and the wife of Dr. Carl Vanderzant of Texas A&M's dairy science department.

By-Passing Cotton in Rearing Boll Weevil Hailed as Major Step in Control of Pest

COLLEGE STATION, TEXAS—The boll weevil has just lost a major engagement in its battle to dominate cotton fields of the South.

Dr. Erma Vanderzant, a biochemist at Texas A&M College, has found a way to rear boll weevils in the laboratory without the necessity of utilizing green cotton, which has been a major drawback to entomological work with this pest in the past. Formerly the cotton plants were necessary, both for nutrition of the weevils, and for a stimulus to the laying of eggs.

Now, however, Dr. Vanderzant, a member of the USDA's agricultural research service, attached to Texas A&M's department of biochemistry and nutrition, has overcome this stumblingblock and made possible a year-round supply of test weevils.

Dr. Vanderzant is the same scientist who earlier discovered a way to raise succeeding generations of pink bollworms in the laboratory. For several months now she has known how to feed the boll weevil in all stages, but could not induce oviposition.

Her recent victory in this problem resulted from the introduction of non-cotton plant extracts and certain other nutrients to the regular diet which she fed to the weevils. This basic diet fed to growing weevils, includes soybean protein; sucrose, cholesterol, fat, B-complex vitamins, minerals in the form of salts, agar, water and stabilizers.

When she is ready for the young adults to start laying eggs, she switches them to a more complex diet which includes most of the earlier diet and also includes protein hydrolyzate, sugar, additional vitamins and other nutrients, water and the non-cotton plant extracts.

Weevils which have been several generations removed from cotton fields and cotton plants offer the scientist a much better research medium, since they can be selectively controlled for such factors as uniformity in age, nutritional background and insecticidal resistance.

This means that researchers can determine what insecticides will kill both experimental weevils and will in the same dosage and application methods kill similar groups in the field. More precise knowledge of insecticide cause-and-effect is expected to result from such comparisons.

There are still problems in the mass production of boll weevils for laboratory purposes, however. Probably the biggest single such factor is the time required. Since the larva of the weevil, the worm

stage immediately after hatching, is completely helpless, except to eat, each egg must be placed so that when it hatches, the larva can begin to eat immediately.

This requires hand-placing of each egg, and virtually eliminates mass production as it is known in, for example, the poultry industry.

Another factor limiting production of large numbers at this time is the necessity for carefully cleaning each egg and rearing the young in an environment free of micro-organisms.

These will be among the next problems which Dr. Vanderzant and her staff will tackle in the future.

Pesticides Now Being Purchased for Fire Ant Eradication Programs

WASHINGTON — USDA officials here say that in its campaign on the fire ant, now prevalent in dangerous proportions in the Southeast and spreading over into the delta area, they have been buying both heptachlor and dieldrin to eradicate this pest. Purchases are being made regionally by USDA and independently by cooperating state governments.

These officials say these products are effective primarily in wiping out fire ant mounds and also have residual effects for some time after application.

USDA purchases for its part in the campaign are being made through the New Orleans office. USDA and the cooperating state governments have been purchasing on a hand-to-mouth basis as the products are used.

It is understood that little airplane spraying has been conducted due to the fact that the infestation incidence varies widely between counties or acreage within counties.

For example, it is reported that in Arkansas there is one compact area of approximately 12,000 acres where massive treatment is possible. In Georgia, however, there is a more spotty condition which demands close attention by individual farmers.

USDA officials are optimistic that they have their massive attack schedule now going into high gear and that as the states fall into step with the federal campaign they may stamp out this pest successfully.

MAN OF THE YEAR

MEMPHIS—Claude L. Welch, head of the National Cotton Council's production and marketing division, has been named 1957 "Man of the Year in Service to Southern Agriculture" by Progressive Farmer magazine.

LOWER PRICE SUPPORTS

(Continued from page 1)

Mr. Benson is now leading from strength. He is buoyant, exuding optimism and is clearly prepared to face Congress in a showdown fight for an ultimate goal of eliminating flexible price supports, rigid high price supports and acreage allotments. He has a positive program toward ending the price support fantasy which has done little more than build up surpluses, thus failing to give the farmer even the levels of parity which the price support program implied. The system has meant staggering losses to taxpayers as a whole. Export sales losses are great now as CCC dumps its stocks in foreign markets at prices below the level which was paid for them originally at price support levels.

The dairy price support decision is the tipoff of what will come for feed grains next year and the oilseed crops as well. In price support decisions for those crops, Mr. Benson has full discretion to support them between zero and 90% of parity.

The announcement of the level of support for those crops is not likely to be made before late February, 1958, but when that announcement is made it is now nearly certain that it will be at a lower level than prevailed during this crop year.

The secretary has been doing a considerable amount of spade work in the field as he heralds the failure of the present farm law. He has called spades, spades. He has pointed out how price supports have failed to provide promised prices to the farmers except to the extent that the U.S. taxpayers have footed the bills.

Now he is out in the front line trenches. He appears to be gaining substantial support from a large segment of the national economy if his mail is an index of his popularity. This has been especially true since his press conference when he resolved to stay in there fighting. The mail shows that Mr. Benson is applauded by a wholesome majority by his correspondents.

A strong firm Benson, even though he encounters an antagonistic Congress, is going to be a hard opponent for the farm bloc to turn back.

The farm bloc is representing a defeated champion. Mr. Benson represents the epitome of a forceful, determined advocate of something new. Most of the farmers may hate him but deep in their hearts they know that Ezra is right. The farmers may surprise their national representatives and vote their convictions rather

er than their short term pocket books this time.

The outcome of the fight with Congress is a decision for the gods or the crystal ball gazers. The hard-boiled contingent here say Congress will never stand still for a decision to cut price supports for small grain and oilseed. This reporter is unwilling to accept this statement at its face value.

The Farm Belt is in a ferment. They see before their eyes the failure and collapse of the farm program as they knew it. They see a stubborn, determined Secretary Benson unflinching under bitter professional political attack. The Benson they see is sticking to his guns. Perhaps the farmers, those not under the whip lash of farm organizations beholden to the political opposition, will cast a secret but affirmative ballot for Mr. Benson.

That Mr. Benson will go all out for lower price supports for small grains is not only confirmed by information available from members of his advisory committee and top officials of USDA but the crop report last week disclosing a record-breaking supply of feed grains should direct the Secretary next February when he may announce his price support program for those 1958 crops. Moving under the farm law which successive Democratic Congresses have enacted the secretary for the non-basic storable crops must consider an eight-point schedule before he can set a level of support for those crops. A major item in this eight-point calendar is that of the likelihood of government disposal of commodities taken by it in default of loan commitments.

One should always take into consideration a possible slip between the cup and the lip, but it now seems probable that Mr. Benson will move affirmatively to reduce price support on the small grains for next year as well as on the oilseed crops.

The fertilizer and pesticidal chemical industry may now be on notice to keep a wary eye on acreage of those crops depending on how the farmer may jump under changed conditions.

N.J. DEPARTMENT MOVED

TRENTON, N.J.—The plant industry field station and laboratory of the New Jersey Department of Agriculture has been moved to a temporary location at 394 Miller Avenue, Hamilton Township, on the outskirts of Trenton, the department has announced.

Dealers Can Stage Word Contest with Small Investment

There are a variety of contests designed to attract more customers and increase the sales volume in a retail store. Many contests offer excellent cash and merchandise prizes.

The farm supply dealer's sales promotional budget is often too restricted, of course, to stage an elaborate contest, especially in the matter of prizes, but the alert dealer can capitalize on the tremendous public interest in contests by staging one of his own with moderately priced prizes.

Very few contests flop for lack of interest or entries. Research has shown that farm women like contests and participate in many of them. And most dealers know that farm women in many instances have a great deal to say about the farm operation.

When the dealer thinks of running a contest for his customers, his thought may turn to the popular one which offers a list of cash or merchandise prizes for the persons who can send in the best answer to the statement, "I like Blank's merchandise because (state your reply in 25 words)."

This type of contest has been worked overtime both nationally and locally, but it remains quite effective everywhere.

However, for the fertilizer dealer the following type of contest may work: Offer prizes for the 10 people (rural residents only) who can make the most words out of this sentence, "Jones Fertilizer Produces Higher Yields."

Why is this sort of contest effective?

Well, for one thing it is very challenging. A farm woman may see the announcement of this contest and just try to pick out one or two words from that sentence. It is easy to find one or two. Thus having her interest snared, she keeps on. Finally it becomes so fascinating that it becomes a project. She keeps on finding word after word.

She is amazed at how long the list can get. She shows it to her family. They try to help her. Over and over again they look at that statement. That sentence becomes so emblazoned in their minds that they may even dream about it. That's how concentration works. The meaning behind those words is going to penetrate many a farmer's mind so that he will consider buying all his fertilizer from Jones.

(Continued on page 14)



"They can't come out until they figure out a fertilizer gift package, no matter how long it takes."

TERM LOANS IN SMALL BUSINESS FINANCING

By Dr. Paul G. Hastings, Professor of Finance, and Director,
Bureau of Business Research, Texas Christian University, Fort Worth, Texas*

Almost every small marketer depends, at least to some extent, on other people's money. Most businessmen are familiar with the use of bank loans to cover short-run needs. They know, too, about the role of equity money, obtained by selling shares of the business, in situations where the need will continue for the life of the enterprise.

Obtaining funds for the intermediate time span, however, often causes trouble. What is a good way of financing requirements running, say, for several years? The answer to this question is often a term loan. Yet, many small business owners and managers do not fully appreciate just how the technique works.

What Is A Term Loan?

In practical business language, a term loan is any business loan extended by a bank or other lending institution for a period of more than one year. It is a loan in which the principal in most cases is retired in installments during the life of the loan.

* Prepared for and published by the Small Business Administration, Washington.

It is also a type of loan useful to businesses which are too small to raise funds by selling bonds or debentures in the capital markets.

For What Purpose Is A Term Loan Useful?

• **First** of all, it is useful in financing expansion. This is frequently a problem in small marketing concerns. For one thing, any further investment by the owners may not be possible. Then again, expansion paid for by re-investing profits may be too slow. Small businesses, generally, do not have much success competing in the bond market, and they may not want to issue stock. Thus, the commercial bank rather than the investment banking house is normally the best source of funds for them. Under such circumstances, a term loan can be the answer.

If your concern gets a term loan, the increased volume of business (resulting from the use of the borrowed money) should permit you to meet the installments on the loan without difficulty.

Unlike short-term loans, there is no need to renew a term loan at frequent intervals. You get the new funds more quickly than would be possible out of retained earnings. Also, the method of repaying a note with the aid of improved earnings reduces strain on the company's cash.

• **Second**, a term loan is useful in consolidating existing debt. Suppose, for instance, that you found yourself with a number of small debts hampering the smooth operation of your concern. The handling of all the debts could be time-consuming, and their existence might lower the credit standing of your company. In addition, the many individual debts might make it difficult for you to take cash discounts on your accounts payable. In such a position, it might be advisable for you to retire the small debts by means of a term loan. One larger, long-run debt then would take the place of several little ones. And the maturity date also would be extended.

• **Third**, a term loan is effective in paying for repairs, replacement of equipment, modernization, and similar large expenses. Here is a situation where funds set aside from earnings for maintenance and for depreciation charges should cover the costs of repairs and replacement of equipment. However, with rising costs and the effects of taxation, funds on hand for those purposes are seldom adequate. At the same time, needed repairs and replacements cannot usually be postponed. A term loan offers a solution.

• **Fourth**, a term loan is useful in paying for modernization of physical facilities and the installation of labor-saving devices. Frequently such investments result in increased revenues or operating economies which improve earnings sufficiently to liquidate the loan and enlarge the business, too.

Is Collateral Required?

One Federal Reserve study of term loans showed that even 10 years ago, about 59% of them were unsecured. Broadly speaking, bankers today are less insistent on requiring collateral for a term loan than in the past. The credit rating of the borrower, the purpose to which the borrowed money is to be put, the extent of additional debt of the borrower—all are factors in deciding whether or not collateral will be required by the bank. Where collateral is required, real estate,

(Continued on page 14)

QUOTE

"If farmers had employed the same cultural practices in 1950 which were considered to be 'advanced' in 1940, housewives would have paid \$10 billion more every year in food bills. Applied to 1957, this annual saving would probably be \$13 billion instead of \$10 billion. The fertilizer industry has contributed materially to increased farm efficiency. If there were no advance in fertilizer technology and use from 1940 to 1950, even though all other agricultural progress had continued as it did, housewives would have paid \$2 billion more each year for food."—Dr. Russell Coleman, Executive Vice President, National Plant Food Institute.

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Businessmen—large and small—often fail in discharging proper employee and community relations responsibilities, claims John T. McCarty, a group relations consultant for the General Electric Co.

Mr. McCarty implies that many businessmen have the idea that it's best not to let the employees and community know too much about their business. He says that many business leaders do an outstanding job of designing, manufacturing and retailing a product and then jeopardize their operations by not getting the support of employees and community neighbors. The results sometimes are strikes, slowdowns and the reluctance of most employees to give their full skill, care and effort on the job. The public, too, often misunderstands the employers' intentions, even though they may be most sincere and honorable.

Mr. McCarty offers the following three-point formula which large and small companies could use for deservicing and getting the intelligent understanding and cooperation of employees and community neighbors:

1. **Act and Live Right Voluntarily**—treat employees fairly and humanely, pay good wages, provide employee benefits, contribute fairly to charities, etc.

2. **Interpret Company Actions**—keep two-way information channels open, tell employees and community neighbors company aims, plans, objectives, problems, etc.

3. **Create and Deserve Favorable Climate**—work for the social, economic and political climate in the community needed in order to help business operate profitably and grow.

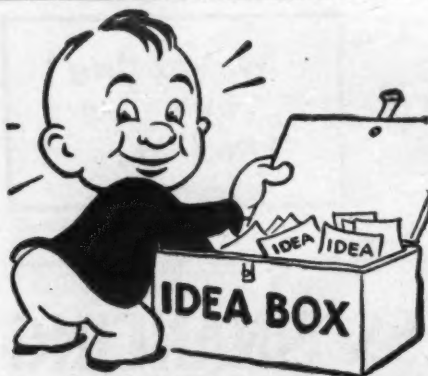
This formula will help businessmen discharge their corporate employee relations responsibilities to employees. However, Mr. McCarty points out that businessmen, as individuals, should be "willing and eager to serve . . . the community in any reasonable way which will contribute to the political, moral, economic and social ob-

jectives needed to make their community a better place to live, work and raise a family.

"As parents and citizens, businessmen should become active in the political affairs of their community. Too many citizens are inclined to show distaste when the word politician is mentioned. They have the idea that politics is dirty and they, as clean and upright citizens, will have nothing to do with it. Politics is only as dirty as the people permit it to be," he adds.

One serious problem, according to Mr. McCarty, is "the trend to government paternalism and our reluctance to do anything about it even though we know this government paternalism is directly opposed to private enterprise."

"Government paternalism wants to be big and make people small. It is opposed to individual incentive, to initiative, to the free and competitive market. We can all recognize the trend to bigger and bigger government and it must be halted by individual citizens. As a citizen and a parent, will you accept the challenge to make your community a better place to live in, raise a family and operate a business?"



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6668—Products Catalog

Publication of the 1957-58 edition of its general products catalog is announced by the Dow Chemical Co. The revision includes latest information on properties and uses of some 375 of Dow's basic agricultural, industrial and pharmaceutical chemicals. The 38-page edition includes descriptive information on principal product groups. Detailed information is given in tabular form for quick, easy reference. A copy may be obtained by checking No. 6668 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6669—Fertilizer Placement

A booklet entitled "Fertilizer Placement" has been issued by the American Potash Institute. Institute officials say "the latest efficient methods of placing fertilizer for row crops are discussed for busy agricultural workers in the new 40-page booklet." Four authorities wrote the major articles. The four men are Dr. S. L. Tisdale, National Plant Food Institute; Dr. A. J. Ohlrogge, Purdue University; Dr. D. P. Satchell, Pennsylvania State University; and Dr. R. L. Cook, Michigan State University. The booklet is available without charge. Check No.

6669 on the coupon and mail it to Croplife. Please print name and address.

No. 5875—Belting Catalog

A new catalog has been issued by Extremultus, Inc., manufacturer of power transmission belting made of polymer and chrome tanned leather. The catalog contains sections on significant applications, a description of the belt, selection of the proper belt type, tensioning and maintenance, and bearing load reduction. A free copy may be obtained by checking No. 5875 on the coupon and mailing it to this publication.

No. 5898—Portable Vehicle Scales

Details and specifications of a line of portable vehicle scales in capacities to 70 tons and lengths of 60 ft. are available from the Howe Scale Co., subsidiary of Safety Industries, Inc. Company officials say that additional scale sections can be joined for greater length and capacity; this operation requires nine standard bolts. No pit is required. Many weight record devices may be used with the scales, it is claimed. Secure details by checking No. 5898 on the coupon and mailing it to this publication. Please print name and address.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6661—Flaked Stearyl Alcohol

The Hodag Chemical Corp. has announced the production of a flaked, technical grade stearyl alcohol in bag form in the quantity requested by the user. Stearyl alcohol, according to the company, has possible application as an intermediate for insecticides and for several other uses. An information sheet listing specifications, physical and chemical properties, and other data, is available. Check No. 6661 on the coupon and mail it to Croplife.

No. 5839—Belt Conveyor Idlers

New literature on belt conveyor idlers manufactured by the C. O. Bartlett & Snow Co. is available without obligation. An 8-page bulletin describes the line of idlers including troughing, flat, self-aligning, rubber disc and return designs; 4-, 5- and 6-in. diameter rolls fitted with either Timken or "sealed for life" bearings; construction; and lists standard sizes, dimensions and weights. Check No. 5839 on the coupon and mail it to secure details.

No. 6663—Liquid Fertilizer Plant

A skid-mounted, batch-type, complete analysis liquid mixed fertilizer plant featuring automatic operation has been introduced by the Barnard & Leas Mfg. Co., Inc. Called by the trade name, the "Complete Autobatch Skid Plant" the unit has a "B & L Autobatch" control unit for producing neutral solutions, a scale-mounted "B & L Liquefier" for adding solids, automatic solids handling system with cycle control, central routing panel, completely wired and pre-piped internally, all mounted on a heavy duty welded I-beam skid frame. It is



designed as a complete package for ready installation by connecting to raw material supply, and electrical connection. A minimum of auxiliary equipment is required for the over-all operation, company officials state. A wide range of complete analysis liquid mixed fertilizers containing nitrogen, phosphorus and potash can be produced, it is claimed. Herbicides, insecticides and trace elements can be added to the formulation. Complete information on batch-type processing of neutral solution complete analysis liquid mixed fertilizers is available. Check No. 6663 on the coupon and mail it to Croplife.

No. 5833—Electric Vibrator

The Cleveland Vibrator Co. has announced a redesign of its RC-50 electric vibrator, used on bins, chutes and hoppers for handling all types of dry or viscous bulk materials. The purpose of the design change, the company stated, is to provide a more powerful unit that is easier to handle and install. The new unit develops a maximum vibrating impact of 2,250 lb. This compares with 1,440 lb. with the old design. The unit is 15 lb. lighter, weighing in at 84 lb. The over-all length has been re-



duced from 14 1/2 in. to 13 1/2 in. The mounting base is changed for easier installation and to provide a better support for the vibrator. Heavier duty wiring is now used. The RC-50 idles at 200 watts on 220 volts. Models 110, 440 and 550 volt are also available. Secure details by checking No. 5833 on the coupon and mailing it to this publication.

No. 6662—Rotary Valves

Rotary valve literature describing Day style "A" rotary valves has been announced by the Day Co. The bulletin describes the various applications for the company's valves, types available and illustrates actual installations, complete with dimensions, specifications and capacities. To secure a copy check No. 6662 and mail it to this publication.

No. 6666—Floor Stand

A floor stand with customer access from four sides has been created by the Container Corporation of America for Swift & Company's plant food division. The merchandiser occupies a floor space of 2 ft. by 2 ft. and provides 16 sq. ft. of shelf facing and 8 sq. ft. for advertising and merchandising messages. Construction is a combination of corrugated board and spiral wound tubes. Company officials say that the unit can be set up in five minutes. The unit holds seven cases of Swift's garden supplies. Check No. 6666 on the coupon and mail it to secure details.

No. 5859—Hoist Carrier

A cab-controlled twin-hook hoist carrier provided with an auxiliary hoist for dumping has been built by the Cleveland Tramrail Division, the Cleveland Crane & Engineering Co. Of weatherproof construction for outdoor service, the unit will pick up tote boxes of materials, haul them and empty by tipping. Various bulk

Send me information on the items marked:

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| <input type="checkbox"/> No. 5898—Portable Scale | <input type="checkbox"/> No. 6665—Package Design |
| <input type="checkbox"/> No. 6658—Solutions | <input type="checkbox"/> No. 6666—Floor Stand |
| <input type="checkbox"/> No. 6659—Nozzle Tip | <input type="checkbox"/> No. 6668—Products Catalog |
| | <input type="checkbox"/> No. 6669—Fertilizer Placement |

(PLEASE PRINT OR TYPE)

NAME

COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9,
P. L. & R.)
MINNEAPOLIS,
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

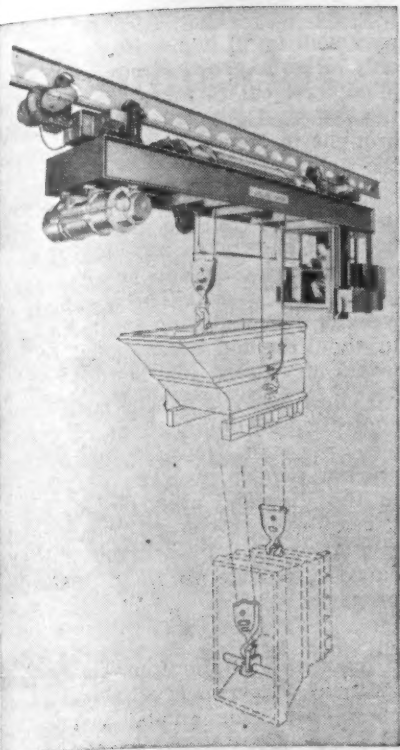
POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept.

Minneapolis 1, Minn.



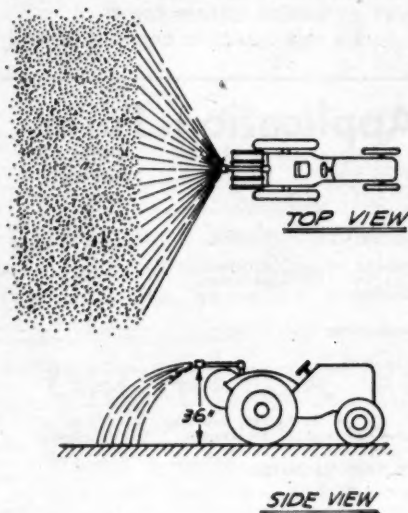
Fumigant. The design features a trademark adopted earlier this year in a standard contrasting color combination of regal red and black. The company's line of more than 100 chemicals in packages is now identified with the new design. Secure details by checking No. 6665 on the coupon and mailing it to this publication.

No. 6664—Copper Sulphate

The Republic Chemical Corp. has prepared a brochure on "Copper Sulphate" which describes in detail the method used to produce Copper Sulphate in a modern plant. It gives statistics as to quantities used in industry, agriculture and export. It describes the various grades produced, such as large crystals, medium crystals, granular, snow and micro-pulverized, free-flowing, noncaking instant powder. Detailed specifications and uses are listed. Secure details by checking No. 6664 on the coupon and mailing it to Croplife.

No. 6659—Spray Nozzle Tip

The Spraying Systems Co. announces a new spray nozzle tip for use with its GunJet No. 2 or No. 42 spray guns that will project a spray in a flat spray pattern up to 42 feet wide. In use the spray gun is mounted on the rear of the tractor about 3 ft. above ground level and pointing to the rear. In this position, the spray gun will broadcast-spray grains and grasses and do related types of oper-



ations. The spray nozzle tip is identified as the DDOC tip, and is made with four orifices to provide equalized distribution of the spray throughout the pattern area, it is claimed. For details check No. 6659 on the coupon and mail it to Croplife. Please print or type the necessary information.

No. 6660—55-Gal. Steel Drums

Vulcan Containers, Inc., is offering a line of open head and closed head, 55-gal. steel drums, manufactured to comply with Universal Standard dimensions, to meet Interstate Commerce Commission and Uniform Freight Classification specifications, company officials have announced. A variety of types and sizes of openings, fittings and plugs are available in the different style drums. The open head style will be furnished with the lever or bolt locking covers. In addition to standard colors and for product and company identification, the drums can be decorated, striped or painted any solid color. Details will be supplied without charge. Check No. 6660 on the coupon and mail it to Croplife. Please print name and address.

DIVIDEND DECLARED

SAINT LOUIS, MICH.—The board of directors of Michigan Chemical Corp. here has declared an annual dividend of 25¢ a share on its common stock plus a 4% stock dividend a common share, payable Dec. 30, 1957 to stockholders of record at the close of business Dec. 16, 1957.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Reports on control of herbaceous weeds, woody plants, weeds in field and horticultural crops, and brush on rangeland and pastures featured the 14th annual North Central Weed Control Conference held at Des Moines. A turnout of 600 persons was recorded.

Chemical & Pigment Co., Oakland, Cal., has completed a new plant in Oakland for the production of Meteor Brand 36% zinc sulphate.

The reaffirmation that dealers, county agents, demonstrations and soil tests are vital factors in influencing farmers to buy fertilizer was heard at the Minnesota Soils and Fertilizer Short Course.

The battle against the imported fire ant is gaining momentum in the South, claims the U.S. Department of Agriculture.

More labeling rather than less is in the future of the pesticide industry, according to a U.S. Department of Agriculture spokesman at the annual Rutgers University pesticide dealers' conference.

Fire destroyed the main section of the G.L.F. Cooperative's insecticide and farm chemicals building at Big Flats, N.Y.

The U.S. Department of Agriculture set an allotment of 38,818,381 acres for the 1958 corn crop in the 932-county commercial corn producing area in 26 states. The 1957-crop corn allotment was 37,288,889 acres.

Six potash producers who in June withdrew from active participation in the activities of the National Plant Food Institute, rejoined the NPFI following a readjustment of the dues structure by the Institute. The moves were made on an individual company basis.

That pesticides are an important part of any successful farm operation, was emphasized at the Ohio Pesticide Institute's meeting in November. Subjects ranged from discussions on residues to the role of gibberellic acid in agriculture.

Speakers at the Eastern Branch of the Entomological Society of America differed in their expressed views of efforts to eradicate the gypsy moth versus merely holding the pest under control. Not only the technical aspects of the problem were discussed, but the public relations side effects as well.

The U.S. Department of Agriculture established special pioneering research groups to explore unknown areas of science. Studies will be made on plant and animal nutrition, insect pathology and physiology, and basic research in other areas.

Pacific Cooperatives announced plans to build a new \$50,000 fertilizer plant near Blackfoot, Idaho. Facilities for producing aqua-ammonia will be constructed first and expansion in other directions later.

Nearly 325 delegates turned out for the National Liquid Fertilizer Assn. convention in Cincinnati. Richard Cecil, Bartlett & O'Bryan Fertilizer Co., Owensboro, Ky., was named president. Ideas for expanding sales were discussed and equipment displays were set up during the convention.

The cost of fertilizer to farmers rose only about 1% in the year ended last Sept. 15, according to the U.S. Department of Agriculture. The fertilizer increase was the lowest in the USDA list of farmer production items except for seed and feed.

Insect resistance is real but is not always the cause of poor control measures with insecticides, it was pointed out at the Florida State Horticultural Society meeting.

The fertilizer industry Round Table held in Washington, was the occasion for presentation of numerous papers on manufacturing technology and new methods. Under the direction of Dr. Vincent Sauchelli, National Plant Food Institute, the 6th annual event attracted some 275 persons from the fertilizer industry.

The cotton yield for 1957, tallied at 413 lb. an acre, was 4 lb. an acre under the record of 1955, but still greatly beyond the ten-year average. Bales produced this year were estimated at 11,788,000 as compared to 13,310,000 bales produced in 1956.

Dr. Frank J. Welch was appointed to the board of the Tennessee Valley Authority on an interim basis, to replace the late Raymond R. Paty who died earlier this year. Other members of the board, now at full strength, are Herbert D. Vogel, chairman, and Arnold R. Jones. Mr. Jones is also on the board on an interim basis. The appointments of both himself and Dr. Welch will have to be confirmed by the Senate when it convenes early in 1958.

The California Fertilizer Assn. met at San Francisco in its 34th annual meeting. William G. Hewitt, Berkeley, was elected president to succeed Jack Baker, Los Angeles. Dr. R. L. Luckhardt, Collier Carbon and Chemical Corp., Los Angeles, was named "Industry Man of the Year."

A seven point program designed to boost fertilizer use in the South by some 7.8 million tons over a period of ten years, was presented by Dr. Russell Coleman, executive vice president of the National Plant Food Institute, at the Southeastern Fertilizer Conference held in Atlanta. He said the tonnage target for the program is based on a "realistic potential."

The Middle West Soil Improvement Committee voted to join the National Plant Food Institute in the latter's broad program of developing the fertilizer market potential throughout the U.S. In a subsequent move, the NPFI accepted the Middle West group and the effective date for the merge was set for Jan. 1, 1958. Zenas H. Beers, executive secretary of MWSIC will become midwestern regional director of NPFI on that date.

Pesticide manufacturers were given until Dec. 31 to submit their views on a proposed amendment to regulations for labeling various pesticides. Under the provisions of the proposed law, no label would be accepted that directly or indirectly implies recommendations or endorsement of products or their ingredients by any federal agency.

No. 5858—Belting

"Hycar" is the trade name of a synthetic rubber that has been adapted to conveyor belting by the Globe Woven Belting Co., Inc. Superior resistance to animal fats and vegetable oils is claimed. Company officials state that the belting stays pliable at -30° to -40° F. and maintains its stability at 250° F. Widths up to 48 in. and 3-, 4- and 5-ply weights are available. Several colors are provided. Check No. 5858 on the coupon and mail it to secure additional information.

No. 6658—Non-Pressure Solutions

The Broyhill Co. has available literature about its equipment for non-pressure nitrogen solutions and balanced mix solutions. Company officials said that the applicators described are designed for "easy and trouble free applying of liquid fertilizers." Dealers may rent or sell the equipment to customers. The literature, including prices, is available without charge. Check No. 6658 on the coupon and mail it to Croplife. Please print or type.

No. 6665—Package Design

Newly designed packages are being used by the Diamond Alkali Co. for packing and shipping its agricultural and industrial chemicals. Shown are the 5-gal. metal drums containing the company's Premium Brand Grain





FARM SERVICE DATA

Extension Station Reports

Farmers who fail to topdress alfalfa run the risk of low yields.

Agronomists at Virginia Polytechnic Institute say lack of topdressing usually means low alfalfa yields. Since alfalfa is a heavy user of nutrients, particularly of potash, a good stand depletes the available supply of potash in a year. Unless the supply is replenished, the yield will go down.

A good topdressing and management program keeps yields high, promotes vigorous growth, and gives longer lived stands. From 600 to 1,000 lb. per acre of a 0-10-20 borated fertilizer, or the equivalent, should be used, except where a soil test indicates otherwise.

★

The gypsy moth, a destructive forest pest, hasn't been found in Maryland and people who are familiar with the leaf-chewing insect say that's the way they want to keep it.

One way the pest could be introduced into the state, is for a Maryland motorist to pick up a Christmas tree or evergreen bough in an infested area and bring it home with him.

Entomologists at the University of Maryland say that eggs of the moth overwinter on evergreens, and that if eggs are brought in on trees or boughs the eggs could hatch next spring and spread the pest to Maryland forests.

Connecticut, Rhode Island, Massachusetts, most of New Hampshire and Vermont, and numerous counties in Maine and eastern New York comprise the area generally infested by the gypsy moth. Parts of New York, Pennsylvania and New Jersey were sprayed earlier this year to eradicate the pest, but the success of the spraying program has not yet been verified. All these areas are under quarantine, and trees and boughs must be inspected and certified before shipment.

Gypsy moth caterpillars each year destroy shade and forest trees worth thousands of dollars, and if they are permitted to spread over a larger area the damage could mount to millions of dollars.

★

What factors influence tobacco yield, quality, chemical analysis of leaf, and acceptability to manufacturers?

This is a question of prime importance these days, and tests underway at the Bright Tobacco Research Station at Chatham, Va., seek the answer.

E. M. Matthews, agronomist at the station, says work has not been done long enough for definite conclusions, but results to date indicate that variety used, as well as certain environmental factors, have a great influence. Among the environmental factors are soil type, fertilization, and irrigation.

Mr. Matthews explains that during the past two marketing seasons large amounts of undesirable leaf—pale, variegated, or of other undesirable characteristics such as lacking in flavor and body—have flooded the markets of the flue-cured belts and later all storage facilities. The purpose of the so-far-exploratory project at Chatham is to determine the causes of the production of the large proportions of undesirable leaf.

All of the leaf from the several treatments is carefully graded by government graders, and after yields and market values are computed the leaf is delivered to a leading tobacco man-

ufacturer's laboratory for complete chemical analysis and evaluation.

★

Hope for a muskmelon, which is resistant to the troublesome disease powdery mildew, is seen by researchers at Virginia Polytechnic Institute.

Horticulturists at VPI Agricultural Experiment Station say some of the selections in their breeding work are now showing good resistance to powdery mildew and are fairly good in quality.

The experimental melons are crosses of mildew-susceptible Ambrosia, a good quality melon developed by a Virginia grower, and resistant lines obtained from the Southern Regional Plant Introduction Station.

★

When is the best time to apply fertilizer to small grains, and what is the best way to apply it?

J. A. Lutz, assistant agronomist at the Virginia Agricultural Experiment Station, has some reports on VPI tests which may help to answer that question.

In one test, spring-seeded oats were fertilized with an equivalent of 200 lb. per acre of 20% superphosphate

from a 10-20-20 fertilizer. Three different times and methods of application were tried: Disked into the soil before seeding; drilled with the seed; and applied as topdressing just after seeding.

Oat forage yields at an early stage of growth were 567 lb. per acre when the fertilizer was disked in, 1,222 lb. per acre when drilled with the seed, and 479 lb. per acre when the phosphate was applied as topdressing.

At a later stage of growth, oat forage yields were 2,433 lb. per acre when the fertilizer was disked in, 2,909 lb. when drilled with the seed, and 1,106 lb. when applied as topdressing.

The same relationship between treatments was reflected in grain yields. Oat yields when the fertilizer was disked in were 53 bu. per acre, when drilled in were 60 bu. per acre, and when applied as topdressing were only 43 bu. per acre.

In another test with wheat, results again showed that forage yields from two clippings were highest when the fertilizer was drilled with the seed, next highest when all fertilizer was disked into the soil. Applying the fertilizer as topdressing just after seeding the wheat gave the lowest yields.

★

The pepper weevil is present in the general area around Vineland in Atlantic, Gloucester and Cumberland counties in New Jersey, according to a survey conducted by the Cooperative Economic Insect Survey and reported by Leland G. Merrill, Jr., Rutgers extension entomologist.

Since this insect is capable of mul-

tiplying very rapidly, the infestation may well be of one season's duration only. Plants grown from seeds supplied by local farmers are grown in the infested southern area and brought to New Jersey for setting in the fields.

Since pepper weevil is a serious pest of peppers, the area should be watched closely to ascertain if weevil could possibly appear again early in the 1958 season. The possibility of weevils overwintering in greenhouses in the Vineland area should be followed up closely, Mr. Merrill said.

Pepper weevils can be successfully controlled by applications of insecticides, he said. However, many small market pepper growers, particularly in the Vineland area, do not follow a regular pest control program and annual weevil infestations would cause a change in their production program.

★

Inspectors of the Connecticut Agricultural Experiment Station have completed their annual examination of Connecticut nurseries and certificates have been issued by the state entomologist, Neely Turner, to 485 nurseries, including 13 new businesses. A total of 4,300 acres of stock was inspected, more than 3% greater than in 1956.

Inspectors reported to W. T. Brigham, deputy state entomologist, that trees, shrubs, and vines in Connecticut nurseries this summer were the "cleanest" in the 56-year history of inspection. Mr. Brigham is in immediate charge of the inspection program.

Mr. Turner and Mr. Brigham point out that the skill and careful attention of nurserymen, and use of modern pesticides, make it possible for Connecticut nurserymen to offer good supplies of stock free from injurious insects and disease.

Connecticut law requires annual registration and inspection of commercial nurseries.

★

A shift in emphasis—from production phases to winter feeding—marks the 1957-58 Massachusetts Green Pastures Program now getting underway throughout Massachusetts. In keeping with the "new look," says Dr. Stanley N. Gaunt, extension dairyman at the University of Massachusetts, the winter Green Pastures Program will stress harvesting, storage and use of forage along with grain and by-product feeding.

★

Farmers now can do more to build the fertility level of their soils in a few years than their grandfathers could do in a lifetime, according to the Middle West Soil Improvement Committee. The tools for this soil rebuilding job are improved management practices and the proper use of fertilizer, says the committee.

With such a program, low yielding land can be readily built up to high fertility levels that cut costs of crop production per acre and increase the farmer's profit margin.

Soil tests can be a good guide in helping the farmer find out what kinds and amounts of nutrients his soil needs to produce profitable yields. Other helpful guides are the farmer's own experience on his fields, results obtained by neighboring farmers and a study of hunger signs in crops.

The benefit of fertilizer in any soil-building program is indicated by the fact that proper plant food use can return as much as \$3 to \$5 in increased crop value for every dollar invested in fertilizer, the committee says.

Farmers get maximum net profits per acre from fertilizer when the last dollar spent on plant food gives only a dollar's worth of extra crops, according to the committee.

Suggested Credit Application Form

CREDIT APPLICATION FORM

Name _____ Date _____

Box No. _____ Rt. No. _____ County _____ Phone _____ Married _____

No. Dependents Other Than Wife _____ No. Years at This Locality? _____ Wife's Name _____

Present Occupation _____ Former Occupation _____

Estimated Yearly Net Income: From Farm \$ _____ Source of Income _____

From Other Sources \$ _____ (Describe) _____

If a Renter, on What Terms: Cash \$ _____ Per No. or Shares _____ If leased, how long will lease run? _____ No. of Acres _____

If an Owner, How Many Acres do You Own? _____ How Many Under Cultivation? _____

Kind of Crops and No. Acres Each Crop _____

Title to Farm in Name of _____

Name of Your Bank _____ Address _____

FINANCIAL STATEMENT

REPORT IN DOLLARS ONLY - OMIT CENTS ALL LINES TO BE FILLED OUT INSERT "NONE" WHERE NECESSARY

ASSETS	AMOUNT	LIABILITIES	AMOUNT	INDICATE AVERAGE MONTHLY PAYMENT & CREDITOR
LAND _____		MTG. ON LAND & BUILDINGS		\$ _____ TO
RESIDENCE _____				
BUILDINGS _____		DUE ON: POULTRY BUILDINGS		_____ TO
POULTRY BUILDINGS _____				
MACHINERY & EQUIPMENT _____		MACHINERY & EQUIPMENT		_____ TO
AUTOS \$ _____ TRUCKS \$ _____		AUTOS & TRUCKS		_____ TO
POULTRY: (No. & Age) _____ LAYERS _____ PULLETS _____		CHICKENS (LAYERS & PULLETS)		_____ TO
TURKEYS _____		TURKEYS		_____ TO
FRYERS _____		FRYERS		_____ TO
LIVESTOCK: (NUMBER) _____ DAIRY CATTLE _____		DAIRY CATTLE		_____ TO
BEEF CATTLE _____		BEEF CATTLE		_____ TO
HOGS _____		HOGS		_____ TO
SHEEP _____		SHEEP		_____ TO
CASH ON HAND & IN BANKS _____		DUE MERCHANTS (OPEN ACCTS)		_____ TO
MARKETABLE SECURITIES _____		DUE MERCHANTS (INSTALL. ACCTS)		_____ TO
OTHER ASSETS—LIST _____		OTHER LIABILITIES—LIST _____		_____ TO
TOTAL ASSETS _____		TOTAL LIABILITIES _____		\$ _____ TOTAL NO. PAYMENTS

SIGNED _____ (Farmer)

There is an ever-increasing need for credit and account control, states the Ontario Retail Feed Dealers Assn., and above is shown a credit application form which the association has devised for dealers who want a true financial position of the applicant. The form also shows the assets on which the loan would be secured. As a check on assets which were originally offered as security and to avoid their unreported disappearance, a running report may be entered on the reverse side of the application form. The dealer's personal assessment of the applicant as a credit risk and the authorized limit of credit he is willing to extend may be added as a guide in handling the account.

Gloomicides

The cub scouts were building bird houses. Since the size of the entrance hole varies with the type of bird desired, each cub was to decide the kind of bird family he wanted to occupy his house, then take it home and have his father drill the holes accordingly.

Bobby returned to the next meeting, bird house in hand, but still lacking the required opening. "Couldn't you make up your mind," the den mother asked, "the kind of bird you want to live in your house?"

"Sure," replied Bobby confidently. "It's for a red-headed woodpecker. He can peck his own hole!"

★

The manager of a night spot in Florida, about to go to lunch with a friend, was approached by his new bartender for a raise. "Sure thing," he agreed. "How much are you making now?"

"\$150 a week."

"Is that all?" said the owner. "Why didn't you come to me before? From now on your salary is doubled. And you get 10% of the bar profits. Oh, yes—and the cloakroom concession. Is that okay?"

"Is it!" gasped the dazed barman and rushed happily back to his post.

"Brother!" said the manager's friend. "That's the biggest jump I've ever heard of. You certainly must think a lot of him."

"That rat?" snarled the manager. "He's been pocketing most of the receipts ever since he came here. I just want to show him what a top job he's being fired from tonight."

★

It's easy to take a child to task; the difficulty lies in getting him to do it.

★

A spinster rushed into the house and confided excitedly to her old maid sister, "Oh Eletha, I'm going out tonight with a used car salesman."

"What's the difference," Eletha assured her, "so long as he's healthy?"

★

In a club car taking us to Boston the other day, we found ourselves oppressed by a deluge of overheard conversation carried on by three middle-aged ladies, and sympathetic toward the fourth member of the group, a sweet little old lady who looked like Whistler's mother and said not a word for a solid hour, until there being a lull, she leaned forward, adjusted her bonnet, and spoke with emphasis. "My granddaughter," she said, "poses in the nude."

★

A Texas oil millionaire walked into a Cadillac show-room and inspected several on the floor with a dissatisfied air. A salesman raced over to him, whipped out an order book, and asked, "What can I do for you today?"

"My wife has come down with a touch of the flu," the tycoon explained. "Have you anything suitable in the way of a get-well car?"

★

Two ghosts walked into a pub and asked the barman: "Do you serve spirits?"

★

On a crowded elevator in Washington, a friend asked a congressman how the year before had been for him.

"Best year I ever had," was the reply. Then the congressman spotted the commissioner of internal revenue on the elevator and added, "I mean spiritually, not materially."

Velsicol Offers 7-Point Dealer Support Program

CHICAGO — A program described as a "new concept in dealer support" is being offered to retailers by the Velsicol Chemical Corp., basic manufacturers of Chlordane insecticide.

According to Velsicol's advertising manager, L. E. Carls, the 1957 program showed that insecticides can be one of the most profitable items a dealer can sell.

Features of previous programs have been combined with new elements, designed to meet the needs of dealers in all parts of the country during 1958.

Highlights of the 7-point program are: (1) an educational "salesmen's insect control refresher course," for all dealer sales personnel; (2) monthly insect control information service; (3) \$10,000 "Show And Sell" sales incentive contest; (4) free advertising support in local areas; (5) ad-

vance copies of Chlordane promotional material; (6) consumer reference list of Chlordane sources of supply to include participating dealers; and the Velsicol award for outstanding insecticide merchandising.

Dealers may sign up now for the program. The entire program is free of charge. Complete information may be obtained by writing Velsicol Chemical Corp., 330 East Grand Avenue, Chicago 11, Ill.

Northeastern Weed Conference Scheduled

NEW YORK — The Northeastern Weed Control Conference will be held Jan. 8-10 at Hotel New Yorker here. In addition to general sessions the program will include sectional meetings on horticultural crops, agronomic crops, forestry and industrial weed problems, public health and aquatics. C. L. Hovey, Eastern States Farmers' Exchange, Inc., West Springfield, Mass., is conference president.

USDA Adds to Soybean Nematode Quarantine Area

WASHINGTON—Sixteen farms and two areas of several sections each were added to the regions regulated because of the soybean cyst nematode in Arkansas, Kentucky, Missouri, North Carolina and Tennessee, effective Dec. 10, the U.S. Department of Agriculture has announced.

Involved in the extensions are: Arkansas, one farm in Crittenden County and two farms and two localities in Mississippi County; Kentucky, four farms in Fulton County; Missouri, two farms in New Madrid County; North Carolina, one farm each in Camden and New Hanover counties and four farms in Pender County; and Tennessee, one farm in Obion County. There is no change in the regulated area in Mississippi.

Six civil districts in Dyer County, Tennessee, have been removed from their regulated status.



it's just off the press..!

Croplife's second edition of

BUG OF THE WEEK

a dealer's manual of insect pests

Here it is! The second edition of Croplife's Bug of the Week in 8½ x 11" booklet form. It's made up from reprints of the series appearing in Croplife during the past several months. The booklet includes 32 insect pests pictured and described—and all are in addition to the 21 which appeared in the original Bug of the Week booklet issued in 1954.

ORDER FOR YOURSELF, YOUR CUSTOMERS

You'll find many uses for this interesting, factual booklet. It's ideal for use by salesmen, dealers—and their customers.

Clad in an attractive cover, the booklet is packed with accurate information about these insects:

European Corn Borer
Khapra Beetle
Red Flour Beetle
Onion Thrips
Pepper Weevil
Rapid Plant Bug
Rose Chafer
Two-Spotted Mite
Cabbage Aphid
Rose Leaf Beetle
Potato Leafhopper

Cotton Fleahopper
Alfalfa Caterpillar
Cowpea Curculio
Corn Rootworm
House Fly
Spotted Cucumber Beetle
Stink Bug
Yellow-Striped Armyworm
Blow-Fly
White-Fringed Beetle
Confused Flour Beetle

Corn Earworm
Leafhopper
Gypsy Moth
Mexican Bean Beetle
Strawberry Weevil
Harlequin Bug
Spotted Alfalfa Aphid
Spider Mite
Cadelle Beetle
Sweet Potato Weevil



SINGLE COPY PRICE: 50 CENTS

Reduced rates quoted on quantity orders.

IMPRINT YOUR FIRM NAME

The back cover has been left blank so it can be utilized by dealers and others for promotional purposes. Company name or your advertising message can be imprinted, making the booklet a valuable sales piece. Rates for imprinting on request. Give full details.

FIRST EDITION AVAILABLE

A limited quantity of the First Edition is still available at 25c a copy. It features 21 insect pests.

clip coupon below

Fill in coupon below and mail with remittance to: Reprint Department, Croplife, Box 67, Minneapolis 1, Minn.

Name
Address
City Zone State
☐ Pesticide Formulator
☐ Fertilizer Mixer
☐ Dealer

Check Type of Business

If interested in purchasing supply with your imprint, please write copy for back page, and indicate number you would want. Price will be submitted by return mail. Copy for imprint (use separate sheet if necessary):

Quantity desired:



TERM LOANS

(Continued from page 9)

equipment, stocks, and bonds are most commonly pledged.

Who Extends Term Loans?

The two major sources of term loans are commercial banks and the life insurance companies. In addition, term loans are available under certain conditions from the Small Business Administration, Federal Reserve banks, certain savings banks, and from some installment finance companies.

But for most small business owners, the commercial bank is the place to start in seeking a term loan.

A few points of caution should be added in this regard. First it should be recognized that term loans are not undertaken very often by typical small business owners. As a result, many executives feel unsure of themselves when it comes to judging the details of a loan agreement. In this connection, maintaining sound relations with a bank is highly important. Generally speaking, the best approach is to build a long-term banking connection based on the assumption that it will continue. Sometimes, in fact, term loans are available only to a bank's regular customers.

Second, it should be understood that there is no requirement for a businessman to borrow exclusively from one source. His regular bank, for example, may be "loaned up" and hence more restrictive than others in its lending. In such circumstances, it can be appropriate to seek the needed credit arrangements elsewhere.

Third, it should be remembered that an effective working relationship demands frankness and fair play by both businessman and banker.

What Do Term Loans Cost to The Borrower?

When you buy equipment from a distributor on a time-payment plan, the financing charge for each installment is generally calculated on the full amount of the original loan. In practice, however, you have to repay part of the principal with every installment, and hence the average outstanding balance is only about half the initial amount. Thus, if the stated charge is 6%, the actual interest rate you pay will be almost 12%.

In contrast, term loans often are arranged with a straight interest charge on the outstanding balance only.

In the case of equipment purchases, this may seem a little less convenient than buying on an installment plan, with the distributor taking care of all financing details at the time the sale is made. It does require a separate transaction. But a term loan from a bank also makes it possible to pay cash and usually to obtain a lower financing charge than is offered on the typical installment sales contract.

The interest charged on term loan

borrowing can vary considerably. Rates as low as 2% and as high as 10% per year have been found. What you might have to pay for a particular loan cannot, of course, be told here. If your banker considers the risk small and the cost of handling the loan low—and if he is not "loaned up"—the rate he charges will be relatively low. In any case, however, if you think the rate you are asked to pay is excessive, get in touch with another bank or lending agency. You should, of course, expect to pay a higher rate than would apply to your company for short-term or seasonal borrowing, because of the greater risk and the expense to the bank of handling periodic payments over an extended time.

How Are Term Loans Made?

THE CREDIT ANALYSIS—Because a term loan covers a period longer than one year, your banker is more concerned with long-term financial qualifications than he would be on a loan of a few months' maturity. In this investigation he will examine earning capacity, quality of management, stability of the enterprise, and the extent of the competition facing you. He may seek the advice of market analysts, management consultants, and other technicians before deciding upon the details of the loan.

Among the factors to be analyzed, the banker will probably include the following:

- (1) Market analysis of the merchandise or services sold by your company.
- (2) Appraisal of the stock, if any, which you carry.
- (3) Investigation of your accounting methods, depreciation schedules, reserve policy, and similar matters.
- (4) Financial analysis of the business covering a period of several years to determine the soundness of the financial position, the trend of earning power, and the projected availability of cash for repayment of the loan.
- (5) Investigation of your personal finances where they might influence the credit standing and earning capacity of your business.
- (6) Estimate of the effect of a recession, war, or other contingency on your business.

The banker may restrict your scope of action in employing the money borrowed, or he may permit you almost complete freedom. He may also place other restrictions on the financial management of the business. He may demand the right to inspect your books, or require you to submit periodic reports of your financial condition.

THE LOAN CONTRACT—The loan contract is drawn up by the bank. It includes all provisions which the banker feels are necessary to assure payment of the installments.

Consider carefully the terms of this contract before you sign it. If you feel that some of the provisions might hamper you unduly discuss them fully

Total amount: \$36,000.

Interest rate: 5 percent per annum on unpaid balance.

Repayment

Schedule	Outstanding	Interest	Principal	Total
1957-1st Qtr.	\$36,000	\$450.00	\$3,000	\$3,450.00
2nd Qtr.	33,000	412.50	3,000	3,412.50
3rd Qtr.	30,000	375.00	3,000	3,375.00
4th Qtr.	27,000	337.50	3,000	3,337.50
1958-1st Qtr.	24,000	300.00	3,000	3,300.00
2nd Qtr.	21,000	262.50	3,000	3,262.50
3rd Qtr.	18,000	225.00	3,000	3,225.00
4th Qtr.	15,000	187.50	3,000	3,187.50
1959-1st Qtr.	12,000	150.00	3,000	3,150.00
2nd Qtr.	9,000	112.50	3,000	3,112.50
3rd Qtr.	6,000	75.00	3,000	3,075.00
4th Qtr.	3,000	37.50	3,000	3,037.50
		\$2,925.00	\$36,000	\$38,925.00

with your banker. He knows that each business manager is more intimately acquainted with the detailed problems of his business than an outsider could possibly be. You can expect him to welcome a frank discussion of any aspects of the loan causing concern to you. He should be willing to explain why he wants to include certain restrictions in the loan contract.

Remember: It is important to him that customers be satisfied with the terms of their loans, or at least appreciate the practical necessity of any unwelcome provisions.

The contract will set forth the basic conditions of the loan and may include the following:

- (1) Length of loan period and schedule for repaying in installments.
- (2) Interest and other charges.
- (3) Provision that the entire balance of the loan be made due and payable immediately if any default is made in repayment.
- (4) Any warranties that may be necessary; for example, if a small corporation is the borrower, there will be a warranty that the officers signing the contract have authority to act for the corporation, that the terms of the loan do not violate the charter or by laws, and that the financial statements furnished to the bank by the corporation are correct and complete.
- (5) Requirements to maintain working capital at the proper level.
- (6) Restrictions on other borrowing during the life of the loan.
- (7) Description of assets, if any, pledged to secure the loan, and the terms under which they are pledged.
- (8) Restrictions on the payment of salaries and dividends or distribution of earnings during the life of the loan.
- (9) Miscellaneous restrictions and stipulations. These might include, for instance, provisions for prohibiting the sale of certain assets, keeping proper insurance, prompt payment of taxes, furnishing of periodic accounting statements to the bank, or perhaps a "no penalty clause" stating that there would be no charge or objection if the loan were paid off before the date originally scheduled.

REPAYMENT OF THE LOAN—One common schedule of repayment calls for equal installments payable every three months. To illustrate how this works suppose that you operated a store with an annual sales volume of \$780,000 and profits before taxes of \$14,800. Equipment and fixtures are old and in need of modernization. You figure that a thorough renovation, costing \$36,000, would boost sales to a level of \$975,000, and yield profits of \$24,300. You decide to finance the modernization through a term loan to run for three years. Your bank agrees and sets up a repayment schedule as shown in figure 1.

Monthly repayment, semiannual repayment, and even annual repayment schedules are found in some term loans. The frequency of repayment will depend on the character of your business and other conditions which will influence the bank in extending a loan. For instance, if you are required to make quarterly income tax payments, the loan repayment sched-

ule will usually call for its installments at some other time.

Of course, not all repayment provisions of term loans call for equal installments. One variation is called a "balloon" note. In this type the last payment is a large one. An example illustrating the use of the "balloon" note will show how this method of repayment is sometimes used.

Suppose that you want a term loan for a period of, say, 10 years, but your bank is willing to make the loan for a maximum of only five years. In such a case, the bank might be willing to set each of the installments at an amount which would repay the loan in 10 years, but at the end of five years require a large payment which would actually repay all the remaining balance. However, the understanding between you and your banker would be that at the end of the 5-year period, a new 5-year term loan could be extended to refinance that large last payment. The bank would, normally, be quite willing to refinance such a loan, even though it might not be willing to bind itself, at the start, to a 10-year loan.

Banks generally permit prepayment of a term loan without penalty, while insurance companies extending term loans typically require that a premium be paid if the borrower wants to retire the loan early. Where a prepayment is made, the terms of the loan contract will generally require that the prepayment be applied to the final installments first. The prepayment will thus advance the date of final retirement of the loan.

DEALER CONTEST

(Continued from page 9)

Or, the contest may start with a farm child. He or she may start making up words from that sentence. Then he'll talk to his mother about it and she'll try to help him. Finally the whole family will become involved.

Children at school may talk about the contest. They may tell their teacher about it. Farm women may talk about the contest at farm and church social gatherings. The dealer's name will be mentioned everywhere, and so will his products.

It may cost \$50 to \$75 for prizes for the contest, printing and a little advertising. A dealer can spend that much on other types of sales promotion and not get as much publicity.

In a contest like this, an entrant doesn't need to buy the product to become a participant.

This contest is fun for young and old alike. It's something they can pick up and lay down during spare time and busy periods. The entire family can join in on it and have lots of fun.

Judges? Well, the dealer shouldn't have much trouble getting some capable ones. Teachers, judges, lawyers, county agents, extension service workers, etc. There are many to select from. This type of contest is not difficult to judge. Checking of words is an easy process.

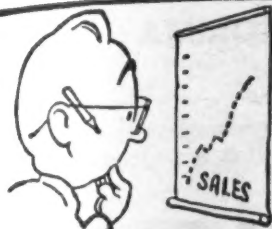
SUMMARY

Term loans can have a vital role in small business financing. Running from a year's duration up, they are useful for meeting requirements which fall between short-time bank borrowings and permanent equity capital.

Term loans should usually enhance earning capacity and permit repayment in a series of installments without adversely affecting "normal" earnings. Where a term loan does not enhance earning power, there are grounds for doubt that the loan should have been extended in the first place. The exception, of course, is the loan extended to prevent a threatened decline in profitability, rather than to improve current earning capacity.

Term loans are often extended to finance essential repairs. As such, they can save a company from having to take the risks of operating under competitive handicaps.

Term loans are not necessarily self-liquidating in the sense that many short-term loans extended by a bank are. Nevertheless, because of the greater length of time during which a banker lends money in a term loan, he usually will insist that the funds be used to provide the means through which the firm can repay the loan.



Doing Business With

Oscar & Pat



Oscar Schoenfeld was burping a little that afternoon, and he didn't like it. He blamed it all on the railroad company. Not only had the morning's business been irritating; he had had a fight with Pat over collections, and Pat had also bought too much new merchandise, but then as Oscar went home to lunch a freight train blocked the crossing for five minutes or more.

This brought Oscar back to work on time nonetheless, but cut down his lunch period. Minnie had had sauerkraut and spareribs, Oscar's favorite dish, and he had eaten it too fast, hence the burps. Oscar was still mad at the railroad company two hours after lunch that December day when tall, lean faced Mrs. Thomsen came into the salesroom.

Mrs. Thomsen was the kind of woman who spoke her mind, even to the preacher. Now there was fire in her black eyes as she walked up to Oscar's desk.

"Why don't you people stick to selling fertilizer?" she snapped, "and not go around telling people to buy pool balls."

Only Tillie and Oscar were in the room, and since Mrs. Thomsen's voice was close to Oscar he knew the remark was directed at him. He turned slowly in his chair.

"Ach, pool balls!" he said. "We don't sell pool balls. There's a pool hall down by the railroad station. You got the wrong place, Mrs. Thomsen."

Mrs. Thomsen's eyes flashed. She was not used to being contradicted. "Don't you tell me I'm wrong," she said. "One of you men told my husband to buy a pool ball, and I don't like it."

"Pool ball!" echoed poor Oscar again. "Mrs. Thomsen, we don't sell pool balls. It—it must be that crazy Pat."

"It was Pat. But you are his partner. You share full responsibility for his mistakes. You are to blame, too. Don't try to crawl out of it. You are worse than that last minister we had. He just about broke up the Ladies' Aid, always tellin' this woman and that she made the best cake he had ever tasted, and then when the story got around, wouldn't admit it."

Oscar fumed. "I—I am a partner in this business," he admitted, "but I am trying to get out. I'm sick and tired of being his partner"—and he pointed at Pat's empty chair. "I'm lookin' in Croplife every week for a place that wants to sell out. I—I—"

"Huh, you just better stick here," Mrs. Thomsen advised. "My husband—and he's a darn good farmer—tells me you wouldn't keep any customers if you left Pat. He likes to come here to buy from Pat. Pat tells him lots of funny stories, goes deer huntin' with him and things like that. But this time Pat's gone too far, telling John to buy a pool ball. I wish he was here so I could tell him."

Oscar was too shocked to say anything.

"Just because John is nervous and worried due to falling farm prices doesn't mean that Pat thinks he can cure him by using a pool ball."

"Pool ball?"

Mrs. Thomsen nodded. "That Pat better keep his advice to himself after this!" she snapped. "He told John he heard of a Chinaman who used a pool ball to go to sleep quicker. John hasn't been sleepin' well nights since he's so worried. He lies in bed thinkin' and thinkin'. Then one day he came home with a pool ball. You coulda

knocked me over, when he says he's goin' to bed with it gripped tight in his left hand."

"In his hand?"

"That's right. John says Pat told him the idea was to grip the ball so hard in the left hand that he'd be thinkin' about that instead of his worries. Sounds awfully foolish, doesn't it? That's why I say Pat should keep his nose in the fertilizer business, but not in our private lives, darn him."

Oscar looked dazed. It was clearly evident that he was becoming more disgusted with business every day, especially when it involved the troubles of customers.

"When John finally goes to sleep, he's relaxed, he claims, and his left hand opens wide and the ball rolls out."

"Oh, interesting," broke in Tillie. "I must try that sometime. I lie awake nights sometimes thinking, and can't go to sleep, and—" she broke off blushing.

"It's not interesting!" Mrs. Thomsen snapped, whirling toward Tillie. "When that ball drops it falls on the bedroom floor. It's denting my best linoleum. And the plaster is startin' to crack on the first floor ceiling right in the dinin' room. The other night the pool ball rolled over against the—well you know and almost broke it." And she turned vindictively to Oscar. "And you can't hardly get them fancy, flower kind no more. My mother give me this one. It was in the family since 1861."

Oscar just stared unbelievably.

Tillie was blushing a little, but she said, to cover up, "But, but you say your husband does fall asleep. So the ball does some good."

"Sure he falls asleep!" cried Mrs. Thomsen. "But I—I wake up when that ball drops to the floor. And I have to lie wide awake and hear him snore for hours. Pool balls! I wish they had never been invented."

The door from the warehouse open-

ed and a big mackinawed, red faced farmer, with snowy cap came in. "Hey, Emmy, so this is where you are!" he cried. "I been lookin' all over town for you. Come on. I've got a swell new coat picked out for you at the Leader. A red one with black fur at the neck and cuffs. Gee, I'll bet you'll look swell in it."

Mrs. Thomsen was so surprised, she paled slightly, and she grasped the railing for support. "A coat! But—but, John, how about the falling farm prices you've been worryin' about? How about—"

"To heck with that worryin'," said her husband. "I'm sleepin' better nights now and I feel better. We'll always worry about somethin', I guess, but a guy shouldn't overdo it. Are you comin', or are you gonna stall so long till I change my mind?"

"Oh, I'm comin'," said Mrs. Thomsen anxiously. "You go out to the car and I'll be right there. I—I want to speak to Oscar for a moment."

As the cheerful John Thomsen closed the door and walked through the warehouse, Mrs. Thomsen became rigid again. She pointed her finger at Oscar. "Don't you ever dare to tell a soul I was in her complainin' about the pool ball!" she cried. "Just forget you ever heard me say a thing. You, too!" She turned to Tillie.

She ran quickly to the warehouse door and disappeared.

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WEED OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



JIMSON WEED

(*Datura stramonium*)

How to Identify

Jimson weeds are tall, bushy, coarse, and have a fibrous root system. They grow from one to five feet in height, and the stems are stout, branched, and green-to-purple in color. Leaves measure from 3 to 8 inches in length, with regular toothed margins. They are dark green on top and light green on the underside. Flowers are white or violet, funnel-shaped, and from 1 to 4 inches long, with the largest portion about 1½ to 2 inches in diameter. The seed pod is round, is from 1 to 2 inches from tip to bottom, and has short, stout, sharp spines over the surface. This pod is divided into four different sections that contain many flat, wrinkled, round, dark brown or black seeds. Easiest identification lies in the trumpet or funnel-shaped flower and the prickly seed pod.

Damage Done by Jimson Weed

These unwanted plants, when eaten by either man or animals, is poisonous. This is true of all parts of the plant. Since it thrives in rich soils of gardens and in pastures, feed lots and along creeks in low areas, it is a potential or actual

trouble-maker. The weed also emits a disagreeable odor. Ordinarily, livestock will not eat this plant as such, but the animals may be poisoned by eating very small plants or some leaves when mixed with cured hay.

Life of the Jimson Weed

The plant reproduces only by seed, and the seed may have lain dormant in the soil for a number of years before sprouting and growing. The weed appears over a widespread area of the United States, with particularly troublesome activity in the South. The plant was originally introduced from the tropics.

Control of Weed

Jimson weeds may be controlled by either cultural or chemical means, depending largely upon the economics of the situation and whether the weed appears in crops to be used for human consumption or for feed. If chemical herbicides are used, care must be taken to check with local or state authorities as to the susceptibility of surrounding crops to the chemical, and also for information covering possible residues.

Illustration of Jimson Weed courtesy of U.S. Department of Agriculture.

AMMONIA CONFERENCE

(Continued from page 1)

on's agricultural community achieve greater productivity per dollar of investment.

"Anhydrous ammonia is playing a major part in increasing farm productivity," he said. "This fact is documented by the ever-increasing use of our product for direct application by farmers from coast to coast. In spite of pessimistic cries of anguish heard early this year, NH₃ has again emerged as the leading source of direct applied nitrogen and has posted a 17% gain in usage this year."

In detailing the accomplishments of the AAI, Mr. Stewart mentioned the addition of 189 new members, the participation in nine educational meetings, the 1/100th acre test plot project in Illinois, the publication of the revised "Standards for the Storage and Handling of Anhydrous Ammonia" and the efforts of the legislative liaison committee to standardize laws.

That the future should be viewed with optimism was stressed by Mr. Stewart when he said that educators point out that farmers are using only about 30% of the optimum amount of nitrogen to obtain maximum economic productivity of their land.

"I will grant that our industry has become increasingly more competitive each year and will most certainly continue this trend into the future," Mr. Stewart said. "Remember that nobody is going to come around and take your product away from you today. It takes a concentrated sales and service program to get the job done."

In the trade show area, five tables were set up for discussion of various topics. Specialists answered questions and exchanged information with those who stopped by.

AGRONOMY—Appearing as specialists at various time on this panel were Dr. U. S. Jones, Olin Mathieson Chemical Corp., Little Rock; Dr. R. W. Scanlan, Phillips Petroleum Co., Bartlesville, Okla.; Dr. Tom Longnecker, Texas Research Foundation, Plainview, Texas; Dr. Charles W. Bourg, United States Steel Corp., Salt Lake City, Utah; Dr. M. B. Sturges, Louisiana State University, Baton Rouge, and Richard Maples, University of Arkansas, Marianna, Ark.

Among the commonly asked questions was, "What are the agronomic advantages of anhydrous ammonia that may make it a better nitrogen fertilizer, regardless of cost?" The agronomists said that NH₃ is particularly good for fall application because of its non-leaching qualities. Unpublished Illinois work was cited which showed greater response from corn when fertilized in the fall with NH₃ than with any other method. Another very good use for NH₃ mentioned was in many areas where continuous cropping is practiced with no attempt at rotation. This intensifies the need for nitrogen to narrow the carbon-nitrogen ratio and NH₃ is very good for this, it was said.

In answer to the complaint that application of ammonia results in soil packing, making the ground hard to work, it was brought out that this condition does not arise because of the fertilizer used, but rather is caused by the use on the soil of heavy equipment of various kinds.

The agronomists answered the question, "What is the desirable soil moisture and tilth condition for best application?" by explaining that the soil should be just moist enough to work good for ideal application. However, it has been found that NH₃ can be applied on much drier soil than previously thought possible.

In this connection it was said that on open, sandy soils it is better to

put on lighter and more frequent applications of NH₃, during the growing season particularly. This is necessary because a hard rain on that type of soil will cause considerable leaching and result in less response to NH₃ than on other soils.

ACCOUNTING—Panelists were R. A. Krantz, Hutchinson, Kansas, and Wendell Bader, Bader Agricultural Service, Warren, Ill. An effort was made to explain to those who asked that there are many hidden costs in operating an ammonia business, and these must be considered in pricing material if the distributor is to stay in business. The panelists went over a list of 19 cost items to be considered. They also passed out forms for determining operating costs in the handling and distribution of anhydrous ammonia.

For those who want to go in business, the first requirement, they stressed, is to have a market. This is usually considered to be a good farming area within a 15- to 25-mile radius of the operator's plant. Then if the distributor is prepared and equipped to give his farmer customers service, and if he will consider all his costs in establishing his selling price, he will have hurdled several of the barriers toward being a successful operator, it was said.

NH₃ AND IRRIGATION—Appearing on this panel were R. H. Sloan, Olin Mathieson Chemical Corp., Little Rock; Ed Walden, Agricultural Ammonia Service, Inc., Santa Paula, Cal., and L. A. Webb, Mid-South Chemical Corp., Harlingen, Texas. The major advantage of irrigation application of NH₃, the panelists said, was that no labor is involved. Among the disadvantages listed were: (1) the problem where water is hard with the ammonia precipitating out and ruining valves, (2) distribution is not as even, (3) some of the ammonia is lost in the air, and (4) there is a limit to the amount that can be applied in the water.

The problem of the precipitate being formed where the water is hard can be solved, it was said, by adding a water-softening material to the water. It was revealed that NH₃ is applied through spray irrigation systems in certain areas where the water is very soft, but this system also has its limitations.

The panel concluded that the benefits of direct application are being more and more realized because of the necessity of proper placement in the soil and of even application. Direct application is replacing the irrigation method wherever it is possible to apply direct, it was said.

SAFETY AND HANDLING PRACTICES—On this panel were Mansel Mayeux, Louisiana State University, Baton Rouge; John Allen, Mississippi Tank Co., Hattiesburg, Miss.; Norman LeBlanc, Mid-South Chemical Corp., New Iberia, La.; M. L. Blair, Arkansas inspection service, Little Rock; T. W. Casselman, chief inspector for the Louisiana Anhydrous Ammonia Commission, Baton Rouge, and R. J. Dorman, Bastian-Blessing Co., Chicago.

The specialists observed that NH₃ distributors are more safety-conscious today than they have ever been. They realize more the hazards in handling ammonia and also that by emphasizing safety they can cut down on their insurance costs. The panel members called attention to the improvements in equipment and the increasing number of safety programs.

INSURANCE—Those appearing at the insurance roundtable included E. W. Thomas, Farm Service Corp., Boonville, Mo., and Stanley Lusader, Lusader Fertilizer, Ferrysville, Ind. Problems in this category vary from state to state because of different regulations. It was also brought out

that there is no insurance program that is tailored for the anhydrous ammonia industry and that it is necessary for the distributor to buy a number of different types of policies to give him adequate protection.

Speaking at the kickoff luncheon on the first day of the convention were Gov. Orval E. Faubus and Chester H. Lauck, Continental Oil Co., Houston. Other speakers during the convention were Dr. George S. Benson, president of Harding College, Searcy, Ark., and C. Hamilton Moses, Little Rock attorney.

Social events included two cocktail hours and the annual banquet followed by entertainment and dancing. A special evening program featured sports films shown by Gerry Wakefield, Olin Mathieson Chemical Corp., Little Rock.

Paul J. Duesterhaus Elected President of Ammonia Institute

LITTLE ROCK, ARK.—New president of the Agricultural Ammonia Institute is Paul J. Duesterhaus, Duesterhaus Farm Supply, Fowler, Ill. Mr. Duesterhaus was elected by the directors of the AAI convention in Little Rock, Ark., Dec. 11-13. He succeeds Fred M. Stewart, Agricultural Ammonia Service, Inc., Santa Paula, Cal.

Other officers elected include: S. C. Smith, Smith Co., Uvalde, Texas, first vice president; R. E. Poethig, Bastian-Blessing Co., Chicago, second vice president; R. C. Singletary, Jr., Blakely (Ga.) Peanut Co., secretary, and David H. Bradford, Jr., Mid-South Chemical Corp., Memphis, treasurer. These officers, along with the outgoing president, Mr. Stewart, and C. J. Struble, Standard Oil Co. (Indiana), Chicago, make up the AAI executive committee. Jack F. Criswell was re-appointed executive vice president.

Eight directors were elected or re-elected for a three-year term. They include: Mr. Bradford; Carl Bauserman, South Michigan Nitrogen Co., Richland, Mich.; George Dunklin, Planters Fertilizer Co., Pine Bluff, Ark.; Harry Igo, Plainsman Fertilizer Co., Plainview, Texas; A. J. Schlachbach, Aldo Soil Service, Wauseon, Ohio; Leland Hopkins, Jackson (Miss.) Tank Co.; Cecil E. Squibb, Squibb-Taylor, Inc., Dallas, Texas, and Dan Sanford, Dow Chemical Co., Midland, Mich.

In balloting on the convention site for 1959, Dallas, Texas was selected. Next year's convention will be held in the Morrison Hotel, Chicago, Dec. 3-5.

Reporting on the financial condition of AAI, Murray O. Rasberry, Delta Liquid Fertilizer Co., Helena, Ark., treasurer, said the AAI finished the year in the black and is in a healthy financial condition.

New Export Declaration Schedule Effective Jan. 1

WASHINGTON—That a new Schedule B must be used in preparing export declarations for all shipments beginning Jan. 1, 1958, has been emphasized by Robert W. Burgess, director of the Bureau of the Census. "It is essential that the new Schedule B, 'Statistical Classification of Domestic and Foreign Commodities Exported from the U.S.' be used after Dec. 31," he says. The present export commodity classifications become obsolete after that date.

The 1958 edition of Schedule B is to be sold only on a subscription basis, it is reported. They may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. The price to U.S. firms is \$6, with an additional cost of \$1.50 for foreign mailings.

New Crown Rusts Threaten Oat Crop

Scientists Warn of Spore Spread by Wind

WASHINGTON—The nation's crop of oats—second in importance only to corn as a livestock feed—could be severely reduced in 1958 if present fears of federal-state oat breeders and pathologists are realized, the U.S. Department of Agriculture reported Dec. 16.

Crown rusts of at least 5 different races, all rare or previously unknown in this country, caused mild to severe losses in oats grown in several widely separated areas in 1957. Although these new rust races did only minor economic damage this year, they are a hazard of great potential importance in 1958 and following years.

Windborne spores of crown rust can spread rapidly over wide areas, especially east of the Rocky Mountains. The chance that this may happen in 1958 is enhanced, according to USDA, by an exceptionally heavy 1957 crop of volunteer oats in several northern states.

Volunteer oats serve to keep the rust spores viable. Prevailing northerly winds may have carried the spores to fall-sown and volunteer oats in the South. In the spring, winds from the South could carry the spores that survive winter in the South to spring-planted oats in the North.

A wet growing season would add to the difficulties of farmers by encouraging development and eventual spread of the rusts. But with a dry season in 1958 the oat crop would be in much less jeopardy.

Of some 32 commercial varieties of oats normally grown, none is resistant to all of the 5 new crown-rust races found in different areas last season. Depending on the vagaries of wind and weather, these races can spread, singly or in combination, from area to area and threaten virtually all oat varieties now grown commercially, USDA said.

Robert D. Goodall, H. B. DeVinny New Davison Vice Presidents

NEW YORK—Robert D. Goodall and H. B. DeVinny have been appointed vice presidents of the Davison Chemical Co. Division of W. R. Grace & Co.

Mr. Goodall, who has been general manager of petroleum catalysts, becomes vice president and general manager of the chemical division, one of Davison's three operating groups. The others cover mixed fertilizers and agricultural chemicals. Mr. Goodall succeeds F. C. Nicholson, who will assume increased responsibilities in connection with major development projects of W. R. Grace & Co. in the international field, which are now under active negotiation.

Mr. DeVinny, previously director of industrial and public relations, becomes vice president with the same responsibilities.

NEW MEXICO APPOINTMENT

CLOVIS, N.M.—J. P. Goode of Rio Hondo, Texas, has been named deputy inspector with the Division of Plant Industry of the New Mexico State Department of Agriculture. He will make his headquarters in Clovis. Mr. Goode obtained his B.S. degree in entomology from Texas A&M College in 1955. While in school, he had temporary assignments with the Agricultural Research Service, U.S. Department of Agriculture, at Brownsville, Texas, where he did research work on the pink bollworm and other cotton insects. He has just completed a two-year tour with the armed services.



WORLD REPORT

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

Australian Expansion

Work has started on a plant which will be the first in Australia to produce sulfuric acid from oil refinery gases. Construction is in the hands of Simon-Carves (Australia) Pty., Ltd. Located at Geelong, Victoria, the installation was ordered by Shell (Refining) Australia Pty., Ltd.

H. J. W. Morrison, managing director of the construction firm, says the plant will produce 100 tons of sulfuric acid a day by burning hydrogen sulfide gas, currently produced in the refining operations, but not recovered.

In another development, Wallaroo-Mount Lyell Fertilizers, Ltd., is to spend the equivalent of \$240,000 on new buildings and equipment at Wallaroo, South Australia. The company has just completed the construction of a warehouse to hold 12,000 tons of superphosphate. It plans to install a dressing mill for simultaneous mixing of up to four trace elements with superphosphate.

Financial reports from nearly all Australian fertilizer firms reported increased business in the past 12 months and hopeful prospects for the future. Many firms are expanding. Cresco Fertilizers, Ltd., Adelaide, is spending the equivalent of \$1.1 million on extensions and alterations to cope with the increasing demand. Phosphate Cooperative Co., Ltd., has recently installed a highly mechanized plant to handle the growing mixed fertilizer business.

Canadian Sales Rise

Canadian sales of mixed fertilizers and fertilizer materials, including exports, for direct application to the soil amounted to 1,712,310 tons in the year ended June 30, 1957. This represented a hike of 2.4% over the preceding year's total of 1,671,497 tons, according to the bureau of statistics annual report on the fertilizer trade.

Sales of fertilizer materials rose 3.1% to 1,010,828 tons from 980,508 and mixed fertilizers 1.5% to 701,482 tons from 690,989.

Production of fertilizer materials, including such items as ammonium nitrate, ammonium phosphate, ammonium sulphate, superphosphate and cyanamide, amounted to 1,174,615 tons compared with 1,215,338 in the preceding year, and the output of mixed fertilizers rose to 729,037 tons from 710,278. Imports of fertilizers increased 1.4% to 920,157 tons compared with 907,599 a year earlier and exports 3.8% to 904,059 tons compared with 870,817 a year previous.

Fertilizer Experiments

A fertilizer test designed to establish the maximum yields that can be obtained through the use of fertilizers in the Northern Clay Belt has been successfully carried out by the experimental sub-station at Wabowden in northern Manitoba, 137 miles northeast of the Pas on the Hudson Bay Railway. Experimental work started in 1955.

Various combinations of nitrogen and phosphorous ranging up to 120 lb. an acre, applied at 20 lb. increments, were tested. Six replicates were used with Parkland barley as the test crop. The virgin soil was summer-fallowed the previous year and barley in 1957 was therefore the first crop to be grown. The average yields ranged from 25.4 bu. an acre for the check plots to 93 bu. an acre for the plots with 120 lb. of nitrogen and 120 lb. of phosphorous—the latter being the highest fertilizer rate.

At the different rates, the yields were consistently proportionate to the amount of fertilizer applied and therefore the maximum yield through fertilization does not seem to have been reached, officials state.

The results indicate that fertilizer is essential to achieve reasonably good yields and to ensure maturity of crops in the Northern Clay Belt area.

Chilean Nitrate

Chile's nitrate industry is still on the downward trend though the trade feels that, in the long run, the modern plants and machinery now being installed should reduce costs and could make Chilean nitrate more competitive in foreign markets.

Nitrate brings in a substantial amount of foreign exchange and the decline has had economic repercussions for the government.

Sales boomed during World Wars I and II, but right now the industry is described by observers as depressed; world prices have declined, costs have risen and the growing use of synthetic substitutes provides severe competition.

Exports for the year ended June, 1957, totaled 1,030,000 metric tons, 344,000 tons less than in 1955-56. France and Egypt, both important customers, cut their demand in 1956-57.

The rehabilitation of the industry is being aided by more sympathetic consideration from the government and by a long term loan of \$27.9 million provided by the Export-Import Bank in Washington.

"Old Jordan Soil Fertility" Plots in Pennsylvania Undergo Rejuvenation

UNIVERSITY PARK, PA. — Because of the expanding building program at the Pennsylvania State University, the scientists who work with the Jordan Fertility plots have had to adjust the experimental work conducted there, according to A. C. Richer, D. P. Satchell and L. F. Marriott of the university's soil technology staff.

The area occupied by the plots, once far removed from the main campus, is now a desirable site for many new building projects. As a result, the project leaders drastically changed the management of half of each plot in 1953 to conform with modern recommended practices.

The Jordan plots have, in a sense, been rejuvenated, say the scientists. With their rebirth have come new teachings to be added to the list of cardinal principles established in 1950. These new teachings can mean millions of dollars more income to the farmers of Pennsylvania, it is claimed. Specifically, the results show that:

1. Land made unfertile by previous mismanagement can be quickly brought back to a high state of productivity by proper lime and fertilizer treatments. In 1956 on tier 2, corn yields (corrected to uniform stand) were 46 bu. per acre on the check plots and 128 bu. per acre on the new modernized treatments. Oat yields on the check plots of tier 1 were raised from 28.5 to 63.7 bu. per acre by applying recommended treatments.

2. Soil tests serve as a reliable guide to determine the corrective treatments that should be applied.

Locust Threat Grows

The Anti-Locust Research Center in London has reported extensive locust breeding in eastern Ethiopia and Somalia. It considers that any "escapes" will provide a serious threat to Kenya and Tanganyika from the last two weeks in December onwards.

The continuing threat of the desert locust to food production in many countries of Africa, Asia and the Near East, occupied the attention at the recent conference of member-countries of the Food and Agriculture Organization of the United Nations in Rome. A resolution was passed calling upon FAO to promote increased international cooperation in the fight against the pest.

In the past six years FAO has spent \$1.5 million on locust control and extermination. Individual governments in the countries concerned have spent \$100 million. Highest priority is given to the campaign in the Arabian peninsula. But now the call has been made for even tighter control measures to be exercised in Western Africa.

Interested countries feel that there could be more cooperation: the need is for coordination of information on weather, and for the promotion of a general ecological survey of the main breeding grounds of the pest.

Briefs . . .

Hidronitro, a Spanish firm, is installing a factory for the large scale production of sulfate of ammonia at Tarragona. Completion is expected in the summer of 1958 and the potential output will be 30,000 tons a year.

Large areas in southern Manitoba, chiefly in the Red River valley and southwest area, will experience light to moderate grasshopper infestation in 1958, according to the provincial grasshopper control committee.

British farmers are claiming that

while world reports show an overproduction of sulfate of ammonia, pressure to sell, and a fall in prices on the continent of Europe, U.K. manufacturers are increasing their prices. One farmer says: "The Sulfate of Ammonia Federation extorts from British farmers whatever price it thinks fit, and completely ignores questions of supply and demand."

Snailpiece

On a farm in Galway, Ireland, reports the Farmers' Gazette of Dublin, there were signs of extreme phosphate deficiency in the soil. Examination of the sward and analysis of the herbage confirmed it. Yet a soil analysis indicated there was abundant phosphate in the ground. A more detailed scrutiny of the area revealed the reason for the paradox. Myriads of tiny snail shells were adding their high phosphate quota to the soil phosphate figures obtained by chemical analysis. Though the shells and the snails inside yielded "available" phosphate under laboratory conditions, they made no contribution to the plant food for the herbage.

Miller Publishing To Begin Magazine for Farm Supply Dealers

MINNEAPOLIS — A new publication, Farm Store Merchandising, which will serve the farm supply merchandising field, will be launched in March by the Miller Publishing Co., Minneapolis, publisher of Croplife. It will be the company's seventh publication.

"The new magazine," according to Milton B. Kihlstrum, president of the company, "will have a national controlled circulation among more than 30,000 farm supply dealers and distributors. The one-stop farm supply store has developed rapidly in recent years and this development has been accompanied by a growing demand for information about better management and merchandising techniques, store modernization and case history reports of profitable, progressive farm store dealers. Farm Store Merchandising will supply this type of information."

March and June issues of Farm Store Merchandising are scheduled in advance of regular monthly publication beginning in September. Mr. Kihlstrum said the company stepped up its timetable to include March and June issues, thereby accommodating a number of leading farm product manufacturers who urged the publication of spring and summer issues.

The editor of Farm Store Merchandising will be Emmet J. Hoffman, who for the past five years has been reporting agricultural merchandising developments and trends for the Miller Publishing Co.'s publications. He will continue as merchandising editor of Croplife.

Paul A. Anderson, who has been advertising sales representative for Feedstuffs and Croplife, has been named advertising sales manager.

Mr. Hoffman and Mr. Anderson will continue their headquarters at the company's home office in Minneapolis and will work with the firm's editorial and advertising sales representatives in New York, Chicago and Kansas City.

In addition to Feedstuffs and Croplife, the company publishes The Northwestern Miller, The American Baker, Milling Production, and a year ago it began publication of the Professional Feeder, a bimonthly offset publication circulating to 100,000 farmers in north central U.S.

ARKANSAS SALES

LITTLE ROCK—Fertilizer sales in Arkansas during October totaled 9,867 tons, according to the Arkansas State Plant Board. Sales in October, 1956 were 10,719 tons. July-October sales this year amounted to 55,036 tons, compared with 43,875 tons in a similar period last year.

Ohio Farmers Using Only 41% Of Phosphate, 50% of Potash Suggested by Soil Sampling

COLUMBUS, OHIO—Ohio fertilizer and lime manufacturers and dealers in session at Columbus Dec. 12 and 13, learned that farmers in this state are now applying 41.5% of the phosphate and 50.2% of the potash recommended for cropland by agronomy researchers and extension men.

Of lime, farmers in Ohio are currently using about two thirds as much as needed to correct acidity on cropland.

These are the estimates given the state conference by Dr. Orlo Musgrave, director of the Ohio soil inventory laboratory. Dr. Musgrave's figures are based on tests of 31,000 soil samples submitted by farmers to the laboratory.

The applications of nitrogen in Ohio, based on the same samples, appear to be about 63.5% of the needs on cropland.

Ohio farmers harvest about 10,000,000 acres of cropland annually, Dr. Mervin Smith, chief of the department of agricultural economics at the Ohio State University explained. He predicted that commercial farms in Ohio by 1975 will about double in size, increasing from 200 to 400 acres, and that investments on these farms will approach a quarter of a million dollars each. Business of this size calls for managerial skill, he emphasized, and the relatively low cost of fertilizers compared with land, machinery and labor means that good managers will invest more in plant foods.

Average applications of fertilizers per acre on all Ohio cropland, Dr. Smith said, increased from 12 lb. in 1930 to 60 lb. in 1954.

Pasture and meadow crops are nature's champion conservers of productivity, Dr. D. R. Dodd, retired extension specialist in agronomy, told the conference. "Regardless of how limited are the supplies of available plant nutrients," he explained, "a newly established sod at once begins putting a portion of these into organic reserves. The organic reserves in Ohio

soils may vary from 1 to 8%, with a range of 2 to 3% common in the upper 6 inches of soil.

"Once the organic reserves under grass have been raised to normal level, the annual release from the raw materials in the average Ohio soils may be 12 to 15 lb. of phosphoric acid and 55 lb. of potash. This about is enough to grow 1 ton of alfalfa per acre, or the equivalent in other crops. If 4 tons of alfalfa is the goal about 300 lb. of 0-10-50 fertilizer will be required.

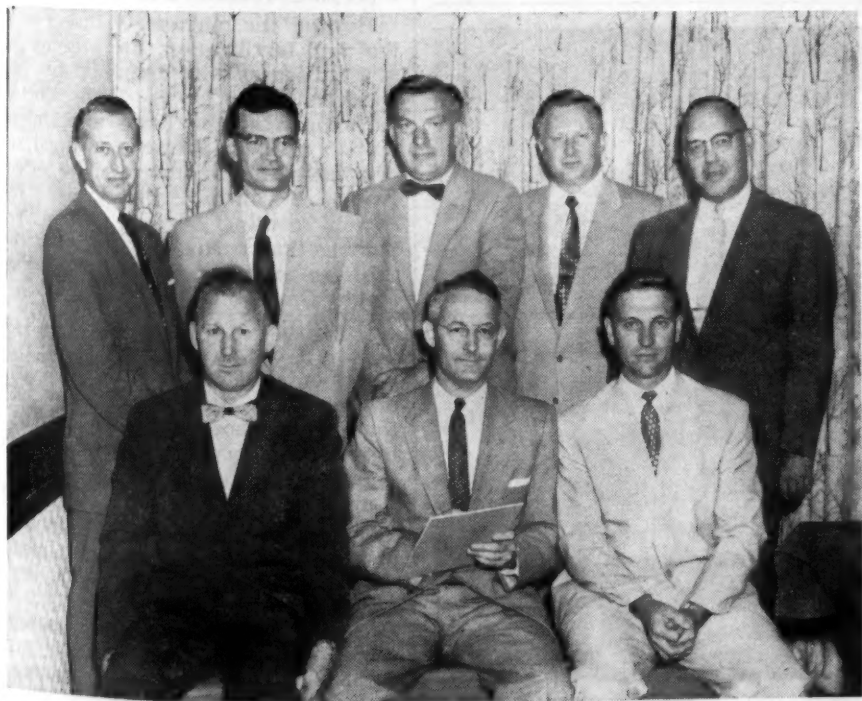
Researchers in soils in Ohio are looking to their studies with radio active materials on the nutritive uptake by crop plants to yield new and valuable information, Dr. Garth Volk, chief of the agronomy department in Ohio, said. Another problem now receiving concentrated study is the effect of aluminum on the lime requirement of soils in the northeastern part of Ohio. Lime applications based on the pH of these soils fails to satisfy the lime requirements.

Labor saving will be an increasing factor in the kinds of fertilizer farmers buy in the future, Dr. H. J. Mederski of the Ohio Agricultural Experiment Station suggested.

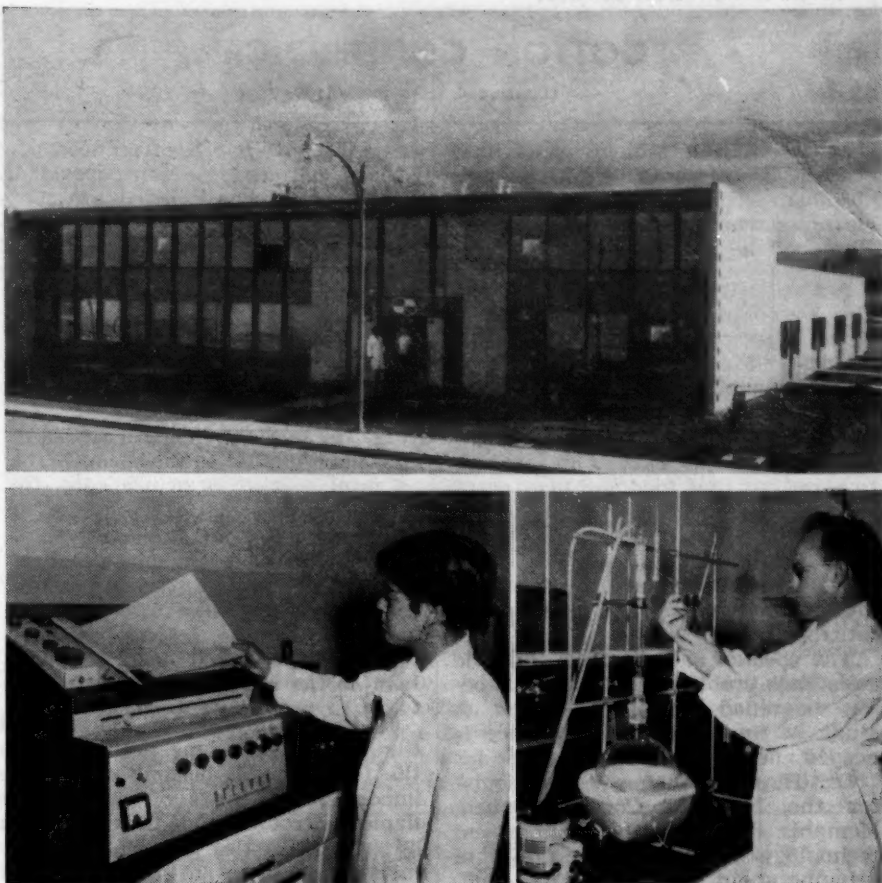
Farmers paid for custom spreading on 82% of the lime used in Ohio during 1954. But they drilled 95% of the solid fertilizers used themselves. More custom spreading of fertilizers and more applications of liquid fertilizers are coming, Dr. Mederski thinks. He also suggested that rates of nitrogen and potash applications will increase and applications of phosphates may decline relatively.

Six regional and one state lime and fertilizer conferences bring together about a thousand representatives of the fertilizer and lime industry, extension, soil conservation service, vocational agriculture and farmers each winter in Ohio.

For the first time this year, the extension service is making all recommendations on fertilizer applications in terms of pounds per acre of N, P₂O₅ and K₂O.



PLAN WEED CONTROL CONFERENCE—Members of the executive committee of the Northeastern Weed Control Conference met recently at New York to complete program plans for the 12th annual NEWCC scheduled to be held at the New Yorker Hotel, New York, Jan. 8-10. In the back row, left to right, are: E. D. Witman, Columbia-Southern Chemical Corp.; J. R. Havis, University of Massachusetts; E. M. Rahn, University of Delaware; D. A. Shallock, Rutgers University, NEWCC secretary-treasurer; and L. Gordon Utter, Diamond Alkali Co. Lower row: S. N. Fertig, Cornell University, NEWCC vice president; Charles L. Hovey, Eastern States Farmers' Exchange, Inc., NEWCC president; and R. J. Aldrich, Michigan State University.



NEW LABORATORY SETUP—Located in a new structure at Palo Alto, Cal., the Hazelton Laboratories are working in the pesticide field making residue studies, developing analytical methods and gathering data. The new laboratory incorporates a number of innovations and is fully equipped to do residue and safety evaluation studies with field trials. Close liaison with federal government agencies is maintained, the laboratory says. Above is general exterior view of the new facility, and below are inside scenes. At left is a spectrophotometer used in method development and metabolism studies, and at right is the method development laboratory with device for fractional distillation used for purification of organic solvents. Hazelton has also operated laboratory facilities at Falls Church, Va., for a number of years.



WINNERS POSE—National winners of 4-H Field Crops Awards for 1957 pose with Hugo Riemer, president of Nitrogen Division, Allied Chemical & Dye Corp. The awards, \$400 scholarships, were made during 4-H Club Congress Dec. 1-5. Nitrogen Division has been donor of field crops awards on the county, state and national level for three years. Shown, left to right, are: Preston Cornelius, Troutman, N.C.; Paul E. Richardson, Jr., Huntington, Mass.; Clifford Orr, Ypsilanti, N.D.; Mr. Riemer; Jimmie Pierce, Minburn, Iowa; James M. Schiltz, Ponca City, Okla.; and J. Robert Paulson, Tracy, Cal.

Nitrogen Increases Grain Sorghum Yields

AMARILLO, TEXAS — Nitrogen fertilizer has materially increased the yield of grain sorghums in West Texas, according to several tests conducted during this crop year.

Alex Pope, assistant agronomist with the Southwestern Great Plains Field Station at Bushland, was in charge of the tests which were located in five counties.

The most economical rate of application was from 60 to 100 lb. per acre. Not only was a heavier yield produced than on unfertilized fields, but the crop was made with less water.

Most fertilizers were applied before planting and were placed in bands

three inches to one side and three inches below the seed. Other types of fertilizer were also used, but Mr. Pope says the Plains soils have not yet been so depleted that they require extra phosphorus and potassium.

While these experiments have been conducted only one year, the evidence seems to indicate that farmers can make more profit by applying nitrogen to their grain sorghum fields.

HEADS CROP GROUP

EAST LANSING, MICH. — Alfred Sturm, of Pigeon, will continue as president of the Michigan Crop Improvement Assn. He was elected at the annual Michigan Seed Producers Conference at Michigan State University.

COTTON CONFERENCE

(Continued from page 1)

tive legislation which would increase costs to, or would be injurious to, those we serve—the farmers who are our end-use customers,” he said.

A great part of legislative activity, Mr. Vernon stated, is apparently a result of unsound publicity. He added the pesticide industry, land-grant college personnel, and state enforcement people have a big job to counteract adverse publicity.

“The important part of our story is to point out that food and fiber crops cannot be economically produced without the use of pesticides which have proved to be safe,” he said. “This is not recognized by the great majority of our city and urban population.”

The speaker said he feels that the resistance problem with insects is being magnified out of proportion. A study of its economic importance is needed, he emphasized.

Dr. H. G. Johnston, entomologist for the National Cotton Council, Memphis, said that although improved technology has been a big factor in bringing about more efficient production of cotton, the greater plant growth, later fruiting, and extending the growing period into the late season make possible a greater number of boll weevils going into hibernation, and allowing more of them to survive the winter. “The abundant food supply (for the boll weevils) enables them to be well-fed, fat, vigorous, and in a better condition to survive the winter. On this basis, we may expect even larger over-wintering populations in the future.”

Records kept for the past 20 years on the fall and spring ground trash examinations at the U.S. Department of Agriculture cotton insect laboratory at Tallulah, La., show that more weevils are not only going into hibernation but more also are living through the winter, he stated.

The study indicates that, on the average, about two and a half times as many live weevils emerged in the spring during the last 10-year period as in the previous ten years. Dr. Johnston said there is good reason to believe that similar increases have developed in other areas.

While pointing out that chemicals will continue to be a major factor in cotton insect control, Dr. Johnston said that the application of chemical pesticides will have to be augmented by good cultural practices before satisfactory control may be achieved. He cited early stalk destruction as being one of the essentials of pest control, and pointed out that adequate mechanical tools are now available to accomplish this end.

Weed control in cotton came in for a considerable amount of attention at the conference. Dr. W. K. Porter, Jr., and C. H. Thomas of the Louisiana experiment station presented a paper describing the use of pre-emergence herbicides in controlling severe weed problems during the “wet” season just past.

Although weed control is important in any given year, the need for efficient and economical control methods is particularly critical in a wet season, the speakers pointed out. Results of efforts put forth during the 1957 season included a reduction of hoeing costs, reducing the effects of weeds on total yield, and pointing up the value of post-emergence oils as a means of reducing hand labor.

Also addressing the conference on the value of weed control, was an Arlington, Tenn. farmer, Robert G. Wilson, who talked on “Looking Ahead at Chemical Weed Control.” Mr. Wilson, who farms a 245-acre cotton allotment, said he began using chemical control methods in 1956. “Since that time,” he reported, “my

chopping cost has been reduced, and I have not had to transport labor. Tenant labor has handled my chopping satisfactorily.”

Here are some of the figures quoted by Mr. Wilson, in connection with his chemical weed control program:

1. The year 1955 was dry, and this factor, along with regular cultivation, held hoe labor cost to \$6.45 per acre.

2. In 1956, chopping cost \$6.70 per acre, plus \$2.50 for chemical, or a total cost of \$9.20 per acre. He considers this figure represents 45 per cent reduction in costs.

3. In 1957, a chopping cost of \$7.96 per acre and \$2.50 for chemical gave a total of \$10.46 per acre. This cost in “the wettest crop year I have experienced” sold Mr. Wilson on the use of chemicals.

In looking ahead, Mr. Wilson said that if wages become prohibitive on the farm, it will become even more important for costs of chemical or flame control methods to be held to a minimum. He also called for a wider margin of error in application of chemicals and a better educational program for farmers if the margin is not broadened.

The cotton grower cited the need for an economical product to control crabgrass, nutgrass, Johnson grass, cocklebur, morning glory and pigweed. A small amount of hoe labor will be necessary on the cotton farm until this is accomplished, he said.

The extent to which resistance of insects to various control chemicals has altered thinking on pest control programs was outlined by C. F. Rainwater, head of the cotton insects section, Agricultural Research Service, USDA, Beltsville, Md. He told the conference that the discovery of resistance in different insects has resulted in greater activity in basic research on how to control the boll weevil.

One of the fundamental achievements, he said, was that of finding how to rear boll weevils on a semi-synthetic diet in the laboratory. This offers tremendous opportunities for productive research in developing new insecticides, attractants, repellents; in developing resistant varieties of cotton; in utilizing chemicals that are antagonistic to growth development and fertility

of the boll weevil; and in development of new methods and concepts of control.

Mr. Rainwater pointed out that such basic research has opened the door to the discovery and development of a new insecticide, belonging to a class of chemicals different from any in widespread use today. It promises to be effective against many cotton insects. He continued by saying that by next year we may be able to recommend this new insecticide.

Both the cotton grower and entomologist are turning their attention to new control programs, he said. Early season applications of insecticides to prevent insect buildups are gaining in popularity at the expense of the traditional method of applying chemicals to reduce high insect populations.

“We are very optimistic over the future of cotton insect control,” Mr. Rainwater said. “We have the resistance problem with us, and we have no reason to think that additional insect pests won’t come into this category sooner or later, but with our research scientists working on these problems, we’ll keep ahead.”

Soil fertility as related to cotton production was a subject pursued by several speakers. Dr. Ralph L. Wehnt of the University of Georgia College of Agriculture reported that an “intensified soil fertility program” is now under way in six counties in the south central extension district. The project, led by county agents with assistance from the state extension staff, is part of a \$200 million soil fertility program throughout the state of Georgia.

Primary objectives of the program, he said, are threefold: (1) to acquaint farmers and business leaders with the major role of fertilizers and lime in making a better Georgia agriculture; (2) to assist farmers in carrying out the best-known fertilizer and lime practices; and (3) to increase farm, industry, and business income by sound fertilization methods.

The educational program is centered around three basic factors—need, facts, and action, Dr. Wehnt said.

Among the facts which will be presented on an individual county basis are:

1. Successful crop production depends largely on wise use of fertilizer and lime.

2. In some counties approximately 80% of the soils are low in potash

and 90% are too acid for best crop production.

3. Figures on present fertilizer use and that needed for the most profitable production, will be shown. Also the fact that many farmers are using the wrong kind of fertilizer will be emphasized.

4. The average yield per acre is too low. Cotton yields could be increased 40 to 50 per cent in the counties by more efficient fertilization.

5. Fertilizer is one of the farmer’s biggest bargains.

Dr. Wehnt said the biggest job to be done is “to develop programs of action to release this storehouse of knowledge on farms where it can be put into effective use.” He then presented a list of “action ideas” which have proved worthwhile.

The action ideas included organization of groups and committees to support the program. Wide use of exhibits, radio, newspapers, television and films to get information to people was also urged.

“Our primary goal is to help farmers become more efficient, to raise their standard of living, and to enlarge their chances of success,” Dr. Wehnt said. “The need to encourage efficiency of cotton production, as well as other crops, was never more important than today.”

Methods of more effective placement of fertilizer in cotton was the subject of an illustrated talk by Walter C. Hulburt, head of the planting and fertilizing equipment practices section of the agricultural engineering research division, USDA. He showed slides of various applying machines for placement of liquid, and dry fertilizers, and discussed the characteristics of each. Illustrations ran the gamut from horse-drawn applicators to the most modern devices for fertilizer placement.

Best results, he said, have come from placement of bands of fertilizer from 2 to 2½ inches at the side of the seed and approximately 2 inches below the seed level. Factors entering in to a decision as to placement include the ratio of the nitrogen-phosphoric acid-potash mixture, the type of soil encountered, and the climatic conditions in the area regarding rainfall, and temperature in particular.

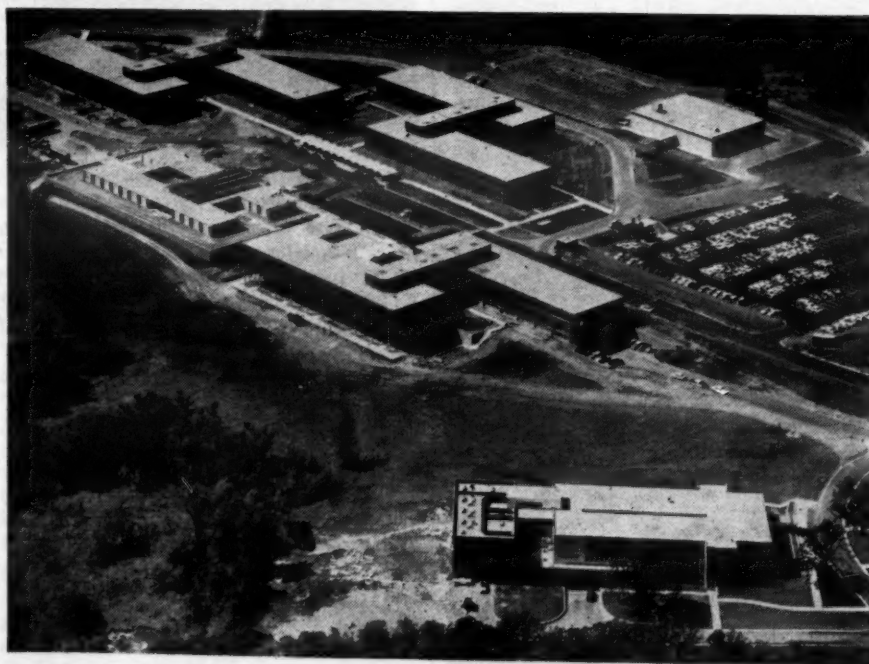
Years have been spent, he said, in developing effective placement equipment, and the National Joint Committee on Fertilizer Application has brought its bulletins up to date after a previous revision nine years ago.

Beyond the matters of insect control and fertilization, the problem of plant diseases was discussed by two speakers. Dr. L. S. Bird, cotton pathologist at the Texas experiment station, College Station, outlined recent research to improve the effectiveness of in-furrow treatment for cotton seedling disease control, reporting that cotton diseases cost the growers an average of 428,000 bales a year through reduced yields.

Dr. Bird said that research work on cotton diseases through in-furrow treatments began in 1953, and had progressed to such an extent by 1955 that the method was being used extensively on several thousand acres in the western area of the cotton belt.

“In 1957,” he said, “it was used more extensively in the western area and also in the lower Rio Grande valley of Texas.” He said that planters who have used in-furrow treatment will continue to use it. “Tests at the experiment station over the past three years,” he said, “have shown an average stand improvement of 68%.”

Dr. Bird pointed out that much research remains to be done to realize the full potential benefits from in-furrow treatments. Among the problems remaining are obtaining a more satisfactory nozzle arrangement for application, reducing the amount of water required for spray application, evaluating and selecting additional and more



CAMPUS SETUP FOR MONSANTO—Bird's eye view of the new general offices of Monsanto Chemical Co. at Lindbergh and Olive Street Rd., St. Louis County, Mo. The new facilities, which the company has occupied only since the middle of October, consist of three identical office buildings and an executive building, located on a 252-acre tract of land. The three principal buildings each contain three floors and together provide more than 300,000 square feet of office space. Approximately 1,500 persons are employed in these buildings. All of the Monsanto executive administration, staff departments and St. Louis-based divisions are housed here. The buildings are connected by tunnels which enable personnel to walk from location to location protected from weather.

PORTRAIT OF A CALIFORNIA FARMER

SAN MARINO, CAL.—The California Fertilizer Assn. reports that the average California farmer is slightly over 50 years old and farms 307.1 acres. The average value of his farm per acre is \$225.00, and his investment in land and buildings is \$60,000. California farmers produce 269 commercial crops. California contains about 1/4 of the nation's irrigated acreage, and its \$2 1/2 billion annual income accounts for 8 1/2% of the national farm income from only 2 1/2% of the nation's farms.

effective fungicides, and investigating promising materials other than fungicides, such as gibberellic acid.

Summing up the potential for in-furrow treatments, Dr. Bird said, "it is a method, which, when combined with good seedbed preparation, good planting procedures, and the use of good seed, which has been properly treated with protectant fungicide, will greatly increase the chances of a grower getting the desired stand with a single planting."

A Texas plant pathologist, Harlan E. Smith of the Texas extension service, said that the proper time for controlling cotton diseases is before planting. Diseases take an estimated 15% of the early crop, and this makes a preventive program of great importance. "Most cotton diseases are controlled by prevention, and this requires planning," he said.

A list of suggestions was given by the speaker, which he said would simplify the formulation of a disease control program. Suggestions included listing the most serious diseases that have occurred in the community during the past 10 years and are thus likely to occur again.

The future farm plan should be checked with questions on soil drainage, planting date, disposal of crop residues, soil fumigation, kind and amount of fertilizer, seed bed preparation, irrigation, and seed variety and treatment in relation to disease prevention.

In outlining an education approach to aid farmers in making full and effective use of the knowledge available, the plant pathologist pointed out that:

1. The farmer should be able to recognize different diseases.
2. Estimating the average losses from a single or combination of diseases will help in planning control programs.
3. A properly trained, full-time extension plant pathologist can be the key man in a strong educational program of any state.
4. It would be helpful if future county agents and vocational agriculture teachers were required to have at least one beginning plant pathology course.
5. County agents should be kept informed of latest developments in cotton disease control. A properly trained extension plant pathologist can perform this function.
6. Local adaptation of control measures is important.
7. An extension leaflet on cotton diseases is of primary importance in carrying on an educational program.
8. Cotton disease educational efforts at the state, district, and county level should be integrated with an over-all cotton production, processing and marketing educational program.

The conference was told that the use of supplemental irrigation in humid areas probably has more impact on cotton farming systems than any technological innovation since the introduction of the all-purpose tractor. Presenting this idea was Dr. Grady B. Crowe, agricultural economist at the Delta Experiment Station, Stoneville, Miss. Dr. Crowe stated that using supplemental irrigation with maximum efficiency will require modification of almost all pro-

duction inputs and all operations in the crop production sequence.

Pointing out that those crops with high gross values per acre yield the greatest results to the use of supplemental irrigation, he described the present cotton growing system in the Mid-South as a "natural in this respect." He went on to say that the farmer should base his decision on supplemental irrigation on whether he can irrigate more than one crop and so spread overhead costs and increase efficiency.

Dr. Crowe said that the use of supplemental irrigation may help reduce the traditional production uncertainties in humid areas. He cited research figures showing that, in a three year test in Alabama, non-irrigated cotton yield varied 35% while that of irrigated cotton varied only two per cent.

The Mississippi economist told the conferees that a decision to use supplemental irrigation must be accompanied by better management and greater labor skill. There must be a dependable and fairly cheap source of water to irrigate efficiently, he said. In the Mississippi Delta area, he said, when water is pumped from a well, it can presently be applied at a cost of 25 to 30¢ an acre inch. Equipment cost is a big factor, he said, and estimated that the average cost of row crop irrigation in Mississippi is about eight dollars an acre per application.

Dr. Crowe emphasized that the use of supplemental irrigation means that the whole range of production practices must be reviewed and that certain practices, such as fertilization, and weed, disease, and insect control must be intensified.

SOYBEAN NEMATODES

(Continued from page 1)

to discount the nematode's destructive potential," says E. D. Burgess, in charge of plant pest control for USDA's Agricultural Research Service.

"Our pest surveyors find, however, that at the end of the growing season they're likely to find large numbers of nematodes on roots of healthy-looking plants—ready to go to work next year—and few on heavily damaged plants. Heavy attack and early damage reduce the root system, so the nematode population build-up is limited by available food."

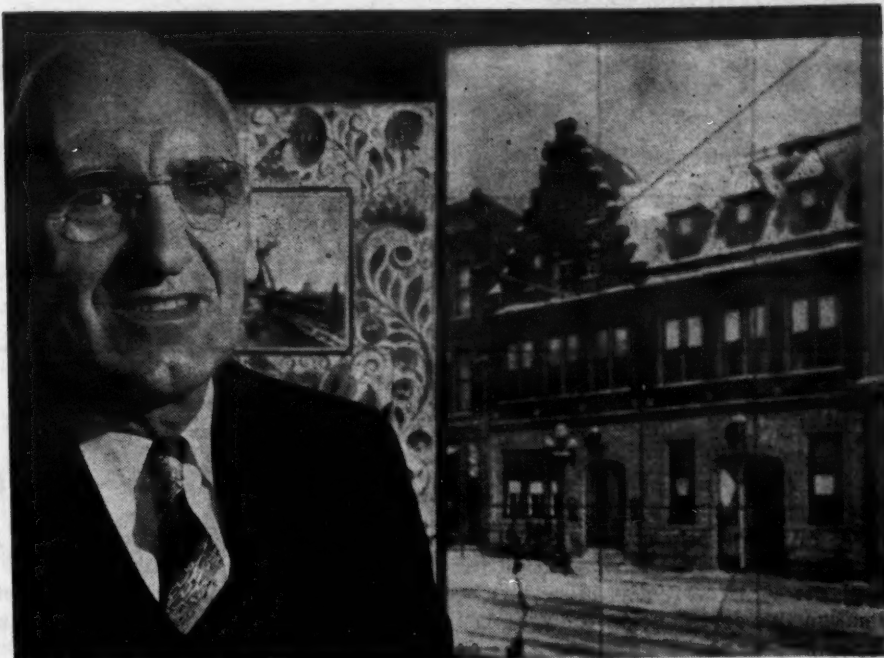
According to Albert L. Taylor, USDA nematologist, soybean cyst nematodes reproduce only when feeding on living plant roots. First invasion is always on young roots, and is always damaging. However, light attack early in the growing season does not prevent development of a healthy root system that can support a large nematode population.

Just how much nematode feeding damages plant growth and yield depends on many things—when and how many nematodes initially attack, how fertile the soil is and how much water is available. Plants with root systems that are not too severely damaged can get along all right, provided other growth factors are favorable.

Low soil temperatures keep nematodes inactive, so some crops get off to a good start before nematode feeding starts. With temperatures near the critical point, less nematode damage might follow a cold, wet spring than a warmer one.

VIRGINIA MEETINGS

BLACKSBURG, VA.—Fertilizer management personnel, salesmen and dealers have been invited to attend a series of fertilizer schools to be held in January under the auspices of Virginia Polytechnic Institute. The meetings will be held Jan. 20 at Culpeper, Jan. 21 at Tappahannock, Jan. 22 at Richmond, Jan. 23 at Halifax, Jan. 24 at Lexington, Jan. 27 at Marion and Jan. 29 at Suffolk.



RETIREES—Thomas A. Griffin, business manager of The Miller Publishing Co., publisher of Croplife, will retire Jan. 1. Mr. Griffin is shown above with the firm's old building in downtown Minneapolis, where he spent 40 of his 48 years with the firm. Mr. Griffin joined the company in 1915 as a stenographer. He became circulation manager in 1924 and business manager in 1947.

New Use of Chemical May Open Way to Large Scale Hybrid Cotton Production

WASHINGTON—Discovery of a new technique for making some strains of cotton male sterile may offer the first practical means yet found for producing hybrid cottons, the U.S. Department of Agriculture has announced.

Recent field trials by USDA and other cooperating scientists demonstrate that certain chemicals, called selective gametocides, will prevent pollen from developing in some varieties of cotton.

The result is a no-pollen, male-sterile plant: one which cannot fertilize itself. If another variety of cotton is planted close by—a variety that is either not affected by the chemical spray, or is not sprayed to begin with—it can provide pollen to fertilize the male-sterile plants, and a cross can be obtained.

Hybrid cottons themselves are not new, USDA points out. Plant breeders have produced many excellent crosses that show outstanding yield and quality characteristics. Such crosses, however, are usually obtained by hand-pollination in carefully controlled greenhouse experiments. The problem has been to find a practical way to produce these hybrids in the field. Large colonies of bees have been used experimentally to promote cross-pollination of cotton varieties, but the results could not be stabilized and controlled.

Gametocide action was observed by Dr. Frank M. Eaton, USDA plant physiologist, in greenhouse experiments conducted in cooperation with the Texas Agricultural Experiment Station at College Station, Texas. These studies were followed by field trials at the Citrus Experiment Station, Riverside, Cal. Dr. Eaton, recently retired from USDA, is now associated with the University of California at Riverside.

Two American-Egyptian cottons (Amsak F₁ and Pima S-1) and two Upland varieties (Empire and Acala 4-42) were used in the California field trials. These four green-leaved varieties were planted in 40-foot rows between alternating rows of a red-leaved cotton. Ten-foot row segments of the red cotton were also planted at the ends of the green rows.

In the tests, the four green-leaved varieties were sprayed with the gametocide FW-450 (a 1% solution of sodium alpha, beta-dichlorobutyrate, developed by Rohm & Haas Co., Philadelphia) about one week before they flowered. After the first bolls opened, the green-leaf cotton were picked at regular two-week intervals,

and their seed was removed from the lint and planted.

Three of the varieties—Amsak F₁, Pima S-1, and Empire—showed good response to the spray. From 62 to 88% of their seedlings were red-leaved. An even higher percentage of the seedlings would undoubtedly have been red-leaved—scientists believe perhaps 100%—except that the one remaining green-leaved variety (Acala 4-42) was only slightly affected by the spray. It produced pollen which competed with that of the red-leaved cotton in fertilizing the 3 green-leaved varieties made male-sterile by the spray.

But since varieties of cotton do differ in their male-sterility response to spraying, field-wide use of gametocides has practical possibilities, the scientists say. By planting two types of cotton—one a variety that is highly susceptible to the gametocide and the other a variety that is not affected by the spray—an entire field could be sprayed, with one variety becoming male-sterile and the other serving as the male parent. Then seed from the male-sterile plant would produce hybrid cotton.

Expanded studies are now underway on other cotton varieties and methods of applying the chemical. More research is necessary, according to the scientists, before recommendations can be made for general use of selective chemical gametocides.

"At the outset of our work with FW-450," said Dr. McBurney, "we were concerned chiefly with its possibilities as an herbicide. Early in the work our scientists noticed that when FW-450 was applied to a number of crops, beans for example, the blossoms dropped off instead of developing normally and setting seed. We called these results to the attention of Dr. Eaton.

"In greenhouse experiments conducted by Dr. Eaton, he observed that cotton flowers dropped off shortly after the petals opened when the plants were sprayed with solutions of FW-450. However, if pollen from unsprayed plants was available for normal fertilization, these flowers stayed on the plant and developed normal bolls containing hybrid seed."

New Brunswick Project

SAINT JOHN, N.B.—Two and one half million acres of New Brunswick timber will be sprayed in 1958 for spruce budworm control. This is about half of the acreage sprayed during 1957. Entomologists are predicting for next summer the lowest budworm population in a decade in most of northern New Brunswick.

Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Northeastern states.

JOB FOR ENTIRE INDUSTRY . . .

Safety in Pesticides Worthy Goal for '58

A gain in safety consciousness throughout the pesticide trade has been tallied during 1957, if we read the signs correctly. More has been said and done on this score during the past 12 months than in any similar period in memory.

Still the public has a long way to go in reading and heeding labels, in using toxic materials correctly and effectively, and in learning at all times to keep these materials and their containers out of reach of children, pets, and any irresponsible people who might be around. There are very few accidents involving pesticides in the normal course of their application, particularly when instructions are carried out.

But accidents involving children and resulting from toxicants being put in unmarked containers continue to be a source of unfortunate happenings. And regardless of the circumstances involved, such accidents are nearly always headlined "Pesticide Causes Death" and immediately a clamor tends to arise for stronger legislation and tighter regulations against the industry.

A recent report of Robert Z. Rollins, chief of the bureau of chemistry, California Department of Agriculture, tells about some of the accidents recorded in California, and it is likely that these reports will sound familiar to officials of other states, too.

He says that "accidental exposure, ingestion, or careless storage" are responsible for most of the injuries and deaths brought to the attention of authorities. Was labeling at fault? Or packaging? Not at all. Carelessness on the part of people in whose homes the material was stored was the chief offender. Furthermore, pesticides were responsible for only about 10% of the deaths caused by solids and liquids of all kinds, Mr. Rollins points out in his report.

"Pesticides caused 10 deaths investigated during the year (1956) in California," he states. "One man drank sodium arsenite weed killer directly from a spray tank, thinking it contained only water. Another man drank emulsifiable malathion which had been placed in an unlabeled bottle, and which he mistook for a medicine.

"A two-year-old child died after handling an emptied container that had held parathion. All the remaining seven deaths were of children ranging between one and four years old, who reached and swallowed sodium arsenite weed killers, sodium arsenite ant syrup, and strychnine gopher bait.

"Several pest control operators were affected by parathion and TEPP during application, but recovered. A worker was affected by parathion when he repaired a tire on a spray rig. A worker was burned in a flash fire when he poured a malathion formulation into a can containing some calcium hypochlorite.

"Two inspectors entering a freight car to inspect grain were overcome by a fumigant remaining in the car. Several children were seriously affected when they swallowed lindane tablets intended for use in insecticide vaporizers."

The hue and cry against insecticides raised in the recent gypsy moth program is an example of how panic can take over. Fears that the materials would kill and injure scores of people, ruin soils and crops, destroy wildlife, and contaminate everything in a wide area caused undue alarm. Still there is no record of anyone being actually harmed by this vast project.

In fact, it is probable that most of the

organiculturists who joined in the general protestations against pesticides drove to their respective meetings in automobiles that each year kill and maim more people and cause more property damage than pesticides are likely to do in the next seventeen centuries.

This is not to minimize one bit the gravity of any situation in which people are hurt. At the same time, however reducing the fear of the public towards pesticides is an important function of the entire industry. We know that manufacturers make every effort humanly possible to provide safeguards, and in addition are regulated by an intricate array of state and federal laws calculated to bring about the greatest possible protection. So it isn't a lack of labels, and most emphatically not a lack of concern on the part of manufacturers that gives rise to accidents.

Rewarding Careers Ahead In Agribusiness World

While young people of school age are being made very conscious of the need for scientists in various pursuits involving mostly atomic energy, missiles, and satellites it should not be forgotten that job opportunities in agriculture continue to offer real rewards to young men and women. The demand for college graduates in agriculture exceeds the supply in nearly every section of the country, despite the fact that farm populations are decreasing and there are fewer young people remaining on farms.

While this is true so far as the "on the farm" population is concerned, it is certainly not the case in the related agricultural industries which have been expanding rapidly. It is this "agribusiness" aspect of the huge agricultural industry in which unlimited opportunities are offered to qualified persons.

Dr. Vincent Sauchelli, chemical technologist of the National Plant Food Institute, who has made a study of the situation, reports that recent surveys of the American Association of Land-Grant Colleges and State Universities indicate that every segment of agribusiness has attractive positions to be filled by adequately-trained persons.

"These colleges and universities expected to supply 8,500 graduates in 1957, but there are openings for 15,000," he points out. "Available positions exist for 1,000 graduates in agricultural research, 1,500 in farm services and vocational agricultural teaching, 1,000 in various conservation services, 3,000 in industry, business and education. Men are needed to inspect, grade and market farm products. The demand for trained people to sell fertilizers, feed and agricultural chemicals is especially heavy.

"It is part of the responsibility of the fertilizer industry as well as the other segments of agribusiness to arouse interest in their organizations among high school students. Other industries are carrying out intensive advertising campaigns and ambitious recruiting programs among the high schools, colleges and universities to attract young graduates," Dr. Sauchelli points out.

"Careers in agribusiness, the giant among industry, should be better known among the student world and the parents of such prospects. Altogether too many desirable young people are being drawn away from healthy, satisfying careers in agribusiness because they have not been sufficiently informed of such opportunities."



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

Managing Editor

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MEETING MEMOS

Jan. 13-14—Nebraska Fertilizer Meeting, University of Nebraska, Lincoln, Neb.

Jan. 20-29—Virginia Polytechnic Institute Fertilizer Schools; at Culpeper Jan. 20, Tappahannock Jan. 21, Richmond Jan. 22, South Boston Jan. 23, Lexington Jan. 24, Marion Jan. 27 and Suffolk Jan. 29.

Jan. 27-31—Seventh Annual Oregon Chemical Applicators Short Course, Withycombe Hall, Oregon State College, Corvallis, Ore.

Feb. 2-4—New York Garden Supply Show, New York Coliseum, New York City.

Feb. 12-13—Shell Chemical Corp. Nematology Workshop, Hotel Stardust, Yuma, Ariz.

Feb. 20-21—Shell Chemical Corp. Nematology Workshop, Holiday Inn Motel, Toledo, Ohio.

EDITOR'S NOTE—The listings above are appearing in this column for the first time this week.

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 8-9—Twelfth Annual Wisconsin Insect Control Conference, Loraine Hotel, Madison, Wis.

Jan. 8-10—Northeastern Weed Control Conference, Hotel New Yorker, New York, R. J. Aldrich, Rutgers University, New Brunswick, N.J., Secretary.

Jan. 9-10—Mississippi Insect Control Conference, State College, Miss.

Jan. 13-14—National Cotton Council of America, twentieth annual meeting, Westward Ho Hotel, Phoenix, Ariz.

Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting, Peabody Hotel, Memphis, Tenn.

Jan. 14-15—Georgia Plant Food Educational Society, Annual Meeting, University of Georgia, Athens, Ga., Fielding Reed, 710 Mortgage Guarantee Bldg., Atlanta, Ga., Secretary-Treasurer.

Jan. 14-16—Nebraska Fertilizer, Machinery and Chemical Exposition, Sponsored by the Nebraska Fertilizer Institute with the Nebraska College of Agriculture, Pershing Auditorium, Lincoln, Neb.

Jan. 20-21—Pest-O-Rama, sponsored by the Alabama Association for Control of Economic Pests, Coliseum, Montgomery, Ala., W. G. Eden, P.O. Box 626, Montgomery, Ala., Secretary-Treasurer.

Jan. 21-22—Michigan Insecticide & Fungicide Conference, Kellogg Center, Michigan State University, East Lansing, Mich.

Jan. 21-22—North Carolina Pesticide School, College Union Bldg., North Carolina State College, Raleigh.

Jan. 21-22—Illinois Fertilizer Industry Conference, University of Illinois, Urbana, Ill.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Jan. 22—Minnesota Aircraft Sprayers Short Course, University of Minnesota, St. Paul campus.

Jan. 22—Oregon Fertilizer Dealers Day, Oregon State College, Corvallis, Ore.

Jan. 22-23—Northwest Agricultural Chemicals Industry conference, Hotel Benson, Portland, Ore. (In connection with N.W. Vegetable Insect Conference and Western Cooperative Spray Project.)

Jan. 23-24—Tenth Illinois Custom Operators School, University of Illinois, Urbana.

Jan. 30-31—Colorado Agricultural Chemicals Assn., Annual Meeting,

Cosmopolitan Hotel, Denver.

Feb. 4-5—Kansas Insect & Weed Control Conference, Williams Auditorium, Kansas State College, Man-

Feb. 4-6—North Carolina Pest Control Operators' Short Course, College Union, Raleigh, N.C. Clyde F. Smith, Dept. of Entomology, N.C. State College, secretary.

Feb. 10-11—Southwestern Branch, Entomological Society of America, annual meeting, Shamrock Hilton Hotel, Houston, Texas.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.

Feb. 20-22—Nitrogen Conference, University of Minnesota, St. Paul. M. W. Mawhinney, Smith-Douglass Co., Albert Lea, Minn., Chairman.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

April 13-15—Sixth Annual California Fertilizer Conference, California State Polytechnic College, San Luis Obispo, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

April 22—Western Agricultural Chemicals Assn., Spring Meeting, Hotel Biltmore, Los Angeles; C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., executive secretary.

June 9-11—Association of Southern Feed & Fertilizer Control Officials, Heart of Atlanta Motel, Atlanta, Ga., Bruce Poundstone, University of Kentucky, Lexington, Ky., Secretary-Treasurer.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

July 8-10—Pacific Northwest Plant Food Assn., Ninth Annual Regional Fertilizer Conference, Pocatello, Idaho.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

California Chemical Employment Gains

SAN FRANCISCO—Employment in the chemical manufacturing industry in California was up by an estimated 2% last October over the same month of 1956, according to the division of labor statistics and research of the State Department of industrial relations.

There were an estimated 39,400 wage and salary workers making all kinds of chemicals in October, 1957, as compared with 38,800 the previous year. There were also 38,800 at work in September of the year just ending.

The production worker segment of the industry earned more money in October than October, 1956, but less than in September. Average weekly earnings during the month reached \$98.06, up from \$94.92 a year before, but down from \$100.79 in the previous month. There was about the same relative variation in average hourly earnings: \$2.40 in October, \$2.42 in September, and \$2.28 a year before.

Four Growers Make 100 Bu. Corn Club In West Virginia

MORGANTOWN, W.VA.—Four West Virginia farmers were awarded "Certificates of Membership" in the West Virginia 100-Bushel Corn Club during the annual meeting of the West Virginia Associated Crop Growers, held on the West Virginia University campus.

These men competed in the fifth West Virginia Hybrid Corn Yield Contest, and their yields were determined in accordance with the rules of the contest. They are A. G. Dransfield, Union, Monroe County, who produced 115.52 bu. per acre of U.S. 13; I. E. Jennings, Welch, Mercer County, who produced 114.98 bu. per acre of W.Va. B-25; Carl Barton, Spanishburg, Mercer County, who produced 112.3 bu. per acre of W.Va. B-25, and C. W. Ferguson, Wayne County, who produced 108.5 bu. per acre of N.J. 8. The yields reported represent bushels of shelled corn which contain 15% moisture.

"The success of the winners of this competition can be attributed to generally good farming practices on the part of the contestant, rather than to any one single thing," commented R. J. Friant, extension agronomist at West Virginia University and secretary of the West Virginia Associated Crop Growers.

"The average yield of the winners for the past five years is 123.89 bu. per acre. The low man in the contest has averaged 54 bu. The average yield of corn for the state, as reported by the state statistician for the past five years, is 43 bu. per acre. The average yield of all contestants is 85.5 bu. per acre, or approximately twice that of the state average. Hence, it appears that since high yields per acre mean high profits, many West Virginia farmers could enjoy a greater income with improved farming methods."

This annual competition is designed to promote interest in higher corn yields in West Virginia; to increase the use of West Virginia "grown" and "certified" hybrid seed corn; to make the most efficient use of fertilizers and liming materials applied to corn land, and to acquire knowledge concerning the best methods for obtaining the highest and most profitable yields of corn.

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Scientist Foresees 100 Bu. Wheat Yields

PULLMAN, WASH.—Use of hexachlorobenzene (HCB) may help Northwest wheat farmers get 100 bu. to the acre, reports a Washington State College scientist.

Dr. O. A. Vogel, Pullman, one of the nation's leading wheat breeders, reports that short wheats with tall yields—100 bu. or more to the acre—will be the next scientific "break-through."

Dr. Vogel, U.S. Department of Agriculture scientist stationed at Washington State College, said that experimental plots of short wheats at Pullman exceeded 100 bu. to the acre with a top of 136 bu. Omar, Brever and Burt varieties, he said, yielded 61 to 85 bu. to the acre on similar fertile soil at Pullman.

HCB will control soil-borne as well as seed-borne smut spores when applied to planting seed, Dr. Vogel said.

Some strains of the short white winter common-type wheats are already being tested for milling and baking quality, Dr. Vogel said. He told members of the Washington Crop Improvement Assn. here that the high-yielding semi-dwarf wheats may be ready for release within three years.

A Complete Sales Medium...

CROPLIFE is the only *complete sales medium* directed to the agricultural chemical industry. It is a *weekly* newspaper appealing to all segments of the industry. One of its editorial functions is to knit more closely together all those industry elements — manufacturers, agents, retailers, the educational echelon and farm advisor groups. It does this by:

- Keeping all segments informed of all industry news.
- Providing feature material designed to help manufacturers and mixers to do a better job, to help dealers sell and to help farm advisors and educational people make sound recommendations.
- Keeping all industry alert to current and proposed government action.
- Providing a channel through which news and advertising can reach all segments of the industry.

This new approach to business journalism for the agricultural chemical industry is being made by a company with 80 years of experience in newsgathering and publishing and one which has built an unchallenged reputation for reliability and service. Advertising of your products and services in Croplife will mean *richer sales fields* for you!

National Coverage Weekly . . .

Croplife's carefully controlled circulation provides national weekly coverage of manufacturers, formulators, mixers and ingredient suppliers.

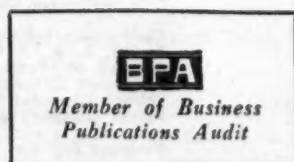
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In addition a unique regional circulation plan provides advertisers with a selective marketing-area coverage of wholesale and retail dealers and farm advisory personnel.

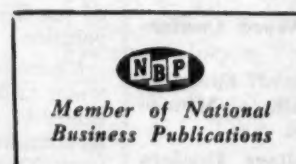


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